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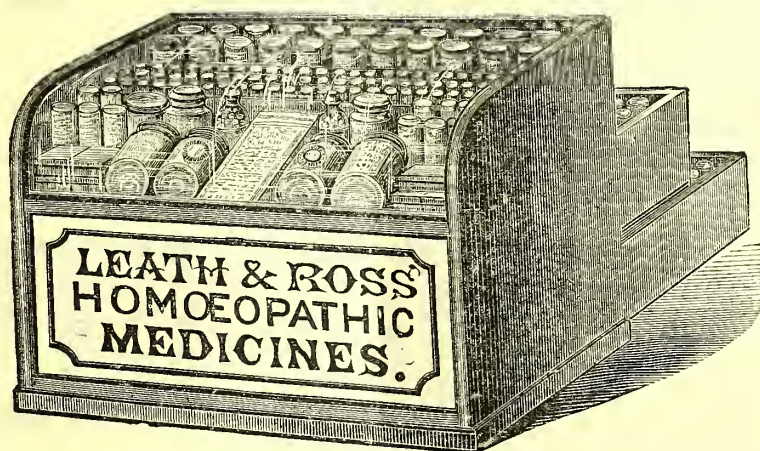
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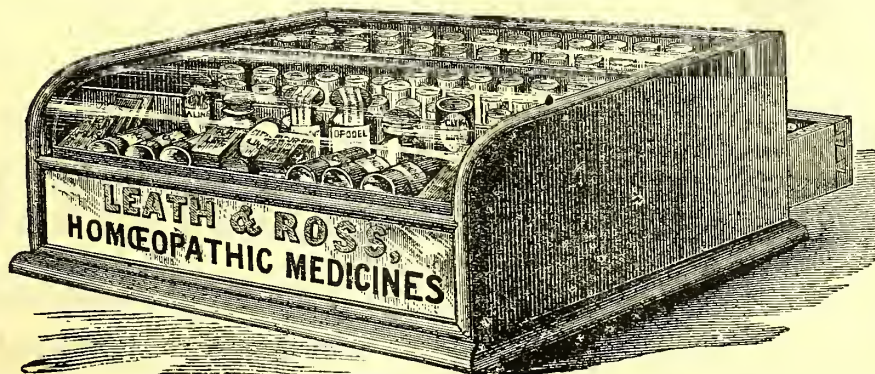
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Hykalline	..	..	1/1½	Chilblain Liniment	..	..	1/1½	Bryonia Liniment	..	1/1½
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EMERITUS PROFESSOR BENTLEY, M.R.C.S., F.L.S.

The Forty-seventh Session will commence on Monday, October 1st, 1888.

The distribution of the School Prizes will take place on Wednesday, October 3rd, at 8 P.M. An address to the Students will be delivered by Sir Henry E. Roscoe, M.P., LL.D., F.R.S., &c. All students and friends, ladies as well as gentlemen, are invited to be present.

### CHEMISTRY

By PROFESSOR WYNDHAM DUNSTAN, M.A., F.I.C., F.C.S.

The Lectures will begin on Monday, October 1st, at 9 A.M., and be continued on the first three days of each week.

### PRACTICAL CHEMISTRY

By PROFESSOR ATTFIELD, Ph.D., F.R.S., F.I.C., F.C.S.

Demonstrator—Mr. F. W. SHORT; Assistant-Demonstrator—Mr. E. WHITE.

The Laboratories will re-open on Monday, October 1st.

Instruction in Practical Chemistry will be given daily throughout the Session, from 10 A.M. to 5 P.M. Students can enter for any number of hours daily, or days weekly, for any period.

### BOTANY

By PROFESSOR GREEN, M.A., B.Sc.

The Lectures will begin on Friday, October 5th, at 9 A.M., and be continued on the last two days of each week.

### MATERIA MEDICA

Demonstrations will be given by Mr. E. M. HOLMES, F.L.S., the Curator of the Museum, on Thursdays, at 10 A.M., commencing on October 4th.

### PHARMACY AND PRACTICAL PHARMACY

Lectures and Demonstrations will be given every week by Mr. JOSEPH INCE, on Tuesdays, Thursdays, and Fridays at 5 P.M., commencing on October 2nd. Laboratory work in Practical Pharmacy will be carried on from 3 to 6 P.M., on Mondays and Wednesdays.

A NEW PROSPECTUS OF THE SCHOOL IS NOW READY.

*Application for Admission to the School, for Prospectuses, or for further information, may be made, personally or by post, to either of the above Teachers, or to their Assistants, in the Lecture Theatre or Laboratories, 17 Bloomsbury Square, London, W.C.*



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(3.) That it has a MUSEUM OF DRUGS, &c., enriched by nineteen years of collection and gifts second only to that of the parent society; the students' specimens being renewed annually.

(4.) That it provides a DISPENSARY capable of accommodating 20 students at a time, *for the use of which no extra charge is made.*

(5.) That it possesses a TECHNICAL LABORATORY fully fitted with steam power, stills, &c., where students can actually learn the manufacture of galenicals on the working scale.

(6.) That it has in addition SPECIAL LABORATORIES devoted to quantitative work, including one for water and air analysis, another for assaying and furnace work, and a third for microscopic, polariscopic, spectroscopic, and similar investigations.

(7.) That its students have for years maintained a regular percentage of success at examinations, and that at certain examinations every student sent up has passed at his first trial.

(8.) That all the FEES are ABSOLUTELY INCLUSIVE, and there are no extra charges of any kind.

(9.) That PERIODICAL EXAMINATIONS are held by visiting examiners appointed by the Council of Education of the School, and MEDALS and CERTIFICATES of attendance and merit are awarded to the successful students at such examinations.

(10.) That all its lecturers are men of long experience and of standing in their particular branches.

FOR SYLLABUS APPLY TO THE SECRETARY.

N.B.—The Session extends from the middle of September to the middle of July, and the best times to commence are September, January, and April, but students may enter at any time provided there is room. Some notice is generally necessary to secure a vacancy.



# THE WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

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scopical Analyses  
conducted.

The Sixteenth Session of this School commenced on Wednesday, September 5, when the Inaugural Address and Introductory Lecture were delivered by Mr. WILLS, Principal.

The following Prizes were Awarded to the successful Students at the Competitions of last Session:—

Senior Chemistry.		Materia Medica.		Botany.	
<i>Silver Medals.</i>		<i>Bronze Medals.</i>		<i>Bronze Medals.</i>	
DOUGLAS, J. W.	GOODMAN, J.	COOPER, J. J.	MORGAN, E.	BEAUCHAMP, F. C.	GRAYSON, J. H.
MARSHALL, W.	GLOVER, T. J.	REID, D.	NORTON, E. T.		SPURGE, E. C.
ESTON, G.	GREENHALGH, T. E.	SURFLEET, A. G.	PLEWS, H. W.		<i>Certificates of Honour.</i>
	NORTHWOOD, H. G.	HEARNshaw, A. D.	PORRITT, G. F.		ATKIN, R. H. A.
	SURFLEET, A. G.	HORSLEY, E. S.	PRICE, J.		CHATTERTON, B.
	WANSBROUGH, E. G. L.	HOWELL, A.	SLINN, H. E.		CHURCH, E. H.
<i>Bronze Medals.</i>			STAPLETON, F. W.		HARRIER, E. W.
MASTERS, H.	<b>Junior Chemistry.</b>		SUFFIELD, M. O.		HEALE, T. A. O.
MILCOCK, F. A.	<i>Bronze Medals.</i>		WATKINSON, E. W.		HOGG, J. A.
	LANCE, W. D.		WILLISHER, C. G.		JAMES, W. M.
<i>Certificates of Honour.</i>	OGLE, J. H.		WILLOWS, H. G.		MELTON, J. A.
LYNTON, C.	PAIN, P.				OGLE, J. H.
POPER, C. T.	<i>Certificates of Honour.</i>				PRIOR, J.
ANIEL, D.	EVANS, J. C.				SMITH, H.
					WILLOWS, H. G.

The next course of Lectures and Classes for the December and February Examinations will commence on Tuesday, October 23, 1888.

FEES					MINOR.				MAJOR.			
	December				£3	5	0	...	£4	4	0	...
	February				£9	9	0	..	£7	7	0	...
	Until Qualified				£12	12	0	...	£10	10	0	...

Students can enter at any time, but are advised to commence their studies at the beginning of a course.

During the past Session 14 Students of this College passed the Preliminary, 140 the Minor, and 12 the Major Examinations of the Pharmaceutical Society. At the last Pharmaceutical Examinations 8 Major Candidates from this School presented themselves, 6 passed.

The following 35 Minor Students were also successful.

## MAJOR.

ARTER, B. | EVANS, J. | FORSTER, J. B. | HEATON, S. W. | WANT, W. P. | WRIGHT, J.

## MINOR.

ADEN, L.	EVYON, C. J.	HITCHMAN, W.	MASERS, H.	PEPPERDINE, H.	TURNER, W. H.
AKER, H. W.	GLOVER, F. J.	HORSLEY, E. S.	MORRELL, C.	REID, D.	WEST, G. W.
ELL, J. H.	GOOLD, B.	JONES, J.	NORTHWOOD, H. G.	RUTHERFORD, W.	WHITWORTH, J. W.
HOOKS, J.	GRIFFITHS, H. T.	JONES, LL.	NORTON, T. E.	STARK, J.	WILKINSON, T.
BROWN, L.	HATHAWAY, F. H. W.	LANCE, W. D.	OGLE, J. H.	TUDOR, W.	WILLOWS, H. G.
DOUGLAS, J. W.	HALL, A. J.	LONGDIN, T. W.	PATCHETT, J.	TURNBULL, H. J.	

## EVENING LECTURES & CLASSES

For Pharmaceutical Students are held in connection with the above College every Tuesday, Wednesday, Thursday, and Friday, from 7 till 9 P.M.

The Thursday Evening Classes extend over a term of SIX WEEKS, and are intended for those Students who have previously failed in the examination, or who wish to present themselves at the next Examination. The course consists of six hours' practical Chemistry, and six Lectures (of one hour's duration) on the most important points in each subject. Fee, 10s. 6d.

The Tuesday Classes are intended for Students who have studied the subjects previously. The course extends over a term of three months, and includes fourteen hours' practical Chemistry and fourteen Lectures on all the subjects required in the Minor Examination. Fee, £1 1s.

The Wednesday Classes are intended for those who are only just commencing their studies. The course extends over a period of 12 months, and includes one hour's practical Chemistry and one hour's class each evening. Fees:—For the complete course, £3 3s.; three months, £1 1s.

The Friday Classes are intended for those preparing for the Preliminary Examination of the Pharmaceutical Society. Fee, three months, 15s.

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January to July ... .. Fee ... MINOR, £5 5 0; MAJOR, £3 10 0.  
September to December ... .., ... .., £3 3 0; .., £2 2 0.

During the year ending at the July examinations FORTY-FOUR Students from this School passed the Minor, and several of them were commended by the examiners, both in London and Edinburgh, for the manner in which their work was done—a proof that Mr. Turner's Class System is useful in ensuring a thorough and practical knowledge of the subjects taught, as well as of obtaining a pass.

Full particulars of the Classes sent on application.

## MINOR PASS LIST FOR THE YEAR FROM OCTOBER 1887 TO JULY 1888 INCLUSIVE.

OCTOBER, 1887.	DECEMBER, 1887.	FEBRUARY, 1888.	JUNE, 1888.
Mr. J. W. Ardern, Denton	Mr. F. H. Bowden, Stretford	Mr. J. C. Marr, Doncaster	Mr. J. W. Bygott, Huddersfield
" F. Bakes, Bradford	" J. S. Gardner, Daventry	" Geo. Myers, Welton	" Geo. Penty, Manchester
" W. Galdes, Brampton	" W. Hampson, Leigh	" J. S. Thomas, Llanerchymedd	" JULY, 1888.
" B. H. Harwood, Didsbury	" H. T. Hyslop, Stockport	" Percy Knott, Bolton	" H. Dring, Brandon Parva
" T. Robison, Manchester	" J. H. V. Wilkinsen, Wakefield		" E. Mason, Stretford
" J. Bird, Manchester			" G. Burnett, Manchester
" J. C. Crompton, Manchester	JANUARY, 1888.	APRIL, 1888	" H. E. Holt, Manchester
" W. F. Downes, Wilmslow	" G. Bennett, Stockport	" W. A. Halstead, Burnley	" J. R. Hindson, Newcastle-on-Ty
" F. E. Evans, Lymm	" H. Chaloner, Stockport	" H. Barrett, Snaith	" H. Colley, Grimsby
" F. Hart, Bolton	" W. Colman, Manchester	" A. Gaddes, Silloth	" T. Briggs, Halifax
" S. Jessop, Brighouse	" J. Davidson, Crosby (Maryport)	" A. H. Barlow, Hyde	" A. George, Manchester
" R. W. Wilson, Manchester	" J. K. Horne, Accrington	" Geo. Bennett, Stockport	" Jos. Thomas, Rochdale
	" R. N. Taylor, Barrow	" R. Wolfendale, Tatbury	



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**SESSION 1888-89.**

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(FORMERLY A PUPIL OF DR. THRESH).

---

The number of pupils attending the Classes has increased very considerably during the past year, and the Pass List for the Session 1887-88 shows *an increase of 50 per cent.* over that for any previous session in the history of the School.

During the holidays structural alterations have been made, whereby more class room, more benches for Practical Chemistry, greater convenience for Dispensing, and an extended Museum have been acquired to meet the demand of the present session.

---

## **CLASSES FOR MINOR STUDENTS.**

**FULL TIME CLASSES** from 10 A.M. to 5 P.M. daily.

**AFTERNOON CLASSES** on Tuesdays, Thursdays, and Fridays, from 3 to 5 P.M.

**EVENING CLASSES** on Mondays, Wednesdays, and Fridays, from 8 to 10 P.M.

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---

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## WINTER SESSION, 1888-9.

**ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.**

The Regulations containing the dates of the Professional Examinations of the above Conjoint Board for the year 1888-9 are now ready, and copies may be had on application to

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The Sixth Course will commence on Thursday, October 4th.

Practical Lectures every Thursday at 4. Clinical Instruction in the Out-Patient Department every afternoon at 2.

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Secretary.

**WINTER, 1888-9. — UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE.**

The New College Building will be opened for Classes on Tuesday, October 2nd. Attendance at this College for one of the four years of provisional study qualifies for the Degrees in Medicine for the University of Durham.

Calendars and all information may be obtained on application to the Secretary at the College.

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CONSULTING SURGEON—Mr. Jonathan Hutchinson, F.R.S.

PHYSICIANS—Dr. Langdon Down, Dr. Hughlings Jackson, F.R.S., Dr. Sutton, Dr. Fenwick, Dr. Stephen Mackenzie, Dr. Sansom, Dr. Charleswood Turner, Dr. Gilbert Smith, Dr. Warner, Dr. Ralfe.

ASSISTANT-PHYSICIAN—Dr. James Anderson.

SURGEONS—Mr. Couper, Mr. Rivington, Mr. Warren Tay, Mr. McCarthy, Mr. Frederick Treves.

ASSISTANT-SURGEONS—Mr. Reeves, Mr. C. Mansell Moullin, Mr. Harry Fenwick, Mr. F. S. Eve.

OBSTETRIC PHYSICIAN—Dr. Herman.

ASSISTANT OBSTETRIC PHYSICIAN—Dr. Lewers.

OPHTHALMIC SURGEONS—Mr. Warren Tay, Mr. F. S. Eve.

PHYSICIAN TO THE SKIN DEPARTMENT.—Dr. Stephen Mackenzie.

AURAL SURGEONS—Dr. Edwd. Woakes, Mr. T. Mark Hovell.

SURGEON-DENTIST—Mr. Barrett.

## LECTURERS.

*Medicine*—Dr. Stephen Mackenzie.

*Surgery*—Mr. Rivington.

*Operative Surgery*—Mr. Rivington.

*Practical Surgery*—Mr. Reeves.

*Anatomy*—Mr. Fredk. Treves.

*Practical Anatomy*—Mr. Mansell Moullin.

*Physiology and Practical Histology*—Mr. McCarthy.

*Chemistry*—Dr. C. Meymott Tidy.

*Chemical Physics*—Mr. F. J. M. Page.

*Comparative Anatomy*—Mr. C. Mansell Moullin.

*Pathology*—Dr. Sutton.

*Pathological Histology*—Mr. Eve.

*Midwifery*—Dr. Herman.

*Toxicology*—Dr. C. Meymott Tidy.

*Botany*—Dr. F. Warner.

*Medical Jurisprudence*—Dr. Sansom.

*Practical Chemistry*—Mr. F. J. M. Page.

*Materia Medica*—Dr. Prosser James.

*Diseases of the Eye*—Mr. Warren Tay.

*Diseases of the Ear*—Dr. Edwd. Woakes.

*Diseases of the Throat*—Mr. T. Mark Hovell.

*Anatomy and Pathology of the Teeth*—Mr. Barrett.

*Emeritus Professor of Medicine*—Sir Andrew Clark, Bart., F.R.S.

*Emeritus Professor of Surgery*—Mr. Jonathan Hutchinson, F.R.S.

THE SESSION 1888-9 will commence on Monday, October 1, 1888. An Old Students' Dinner, which will take the place of an opening ceremony, will be held in the New Library at 7.30 P.M. The chair will be taken by Jonathan Hutchinson, Esq., F.R.S. The New Buildings, which were opened by their Royal Highnesses the Prince and Princess of Wales on May 21, 1887, afford more than double the accommodation which was provided formerly.

Fee for Lectures and Hospital Practice, 90 guineas in one sum, or 90 guineas by three instalments.

The Hospital contains nearly 800 beds. Number of In-patients during 1887 was 8,863; Out-patients, 95,760.

THE RESIDENT AND OTHER HOSPITAL APPOINTMENTS are free to full Students. The Resident Appointments consist of five House-Physicians, five House-Surgeons, one Accouchement, one Receiving Room Officer, and one Senior Dresser to Out-patients. Dressers and Maternity Assistants also reside in the Hospital.

The holders of all the Resident Appointments are provided with rooms and board entirely free of expense.

TWO ENTRANCE SCIENCE SCHOLARSHIPS, value £60 and £40, and TWO BUXTON SCHOLARSHIPS, value £30 and £20, will be offered or competition at the end of September to new Students.

The Lethby Prize, value £30, for proficiency in Chemistry.

A Scholarship, value £20, in Human Anatomy and Physiology, to first ear's Students.

A Scholarship, value £25, in Anatomy, Physiology, and Chemistry, to second year's Students.

A Scholarship, value £20, in Clinical Medicine.

A Scholarship, value £20, in Clinical Surgery.

A Scholarship, value £20, in Clinical Obstetrics.

A Duckworth Nelson Prize, value £10 (biennial), in Clinical Medicine and Surgery.

The Hutchinson Prize, value £35 (triennial), in Clinical Surgery.

Prizes, value £60, to Dressers of Out-patients in Minor Surgery.

Special Classes for the Preliminary Scientific and Intermediate M.B. Examinations of the University of London, and for the Primary and Pass Examinations for the Fellowship of the Royal College of Surgeons of England, are held throughout the year.

Special entries for Medical and Surgical Practice are made.

The London Hospital is now in direct communication by Rail and Tram with all parts of the Metropolis, and the Metropolitan, Metropolitan District, East London, and South-Eastern Railways have stations within a minute's walk of the Hospital and College.

For Prospectus and particulars apply, personally or by letter, to

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# ST. THOMAS'S HOSPITAL MEDICAL SCHOOL,

ALBERT EMBANKMENT, LONDON, S.E.

THE WINTER SESSION of 1888-89 will commence on Oct. 1st, when an Introductory Address will be delivered by Dr. Cullingworth, at 3 P.M.

Two Entrance Science Scholarships of 125 guineas and £60 respectively, open to all first-year students, will be offered for competition. The examination will be held on the 26th, 27th, and 28th September, and the subjects will be chemistry and physics, with either botany or zoology, at the option of Candidates.

Special Classes are held throughout the year for the "Preliminary Scientific" and "Intermediate M.B." Examinations of the University of London.

An additional Laboratory for the teaching of Advanced Physiology has been recently provided.

All Hospital Appointments are open to Students without extra charge.

Scholarships and money prizes of considerable value are awarded at the Sessional Examinations, as also several medals.

The fees may be paid in one sum or by instalments. Entries may be made to Lectures or to Hospital Practice, and special arrangements are made for Students entering in their second or subsequent years; also for Dental Students and for Qualified Practitioners.

Medical Practitioners, clergymen, and private families residing in the neighbourhood receive students for residence and supervision, and a register of approved lodgings is kept in the Secretary's office.

Prospectuses and all particulars may be obtained from the Medical Secretary, Mr. George Rendle. E. NETTLESHIP, Dean.

# GUY'S HOSPITAL MEDICAL SCHOOL.—The

Winter Session commences on MONDAY, OCTOBER 1st.

The Hospital contains 695 Beds, of which 500 are in constant occupation. There are Wards for Obstetric and Ophthalmic cases, and other special departments.

Special Classes are held in the Hospital for Students preparing for the examinations of the University of London and other higher examinations.

APPOINTMENTS.—The House-Surgeons, House-Physicians, Dressers, and all other Appointments, are made strictly in accordance with the merits of the candidates, and without extra payment. There are also a large number of Junior Appointments, every part of the Hospital Practice being systematically employed for instruction, so that Students who have completed their preliminary studies elsewhere may enter at once upon the practice of the Hospital.

ENTRANCE SCHOLARSHIPS.—Open Scholarship, of 125 Guineas, in Classics, Mathematics, and Modern Languages. Open Scholarship, of 125 Guineas, in Chemistry, Physics, and Biology.

PRIZES are open to Students in their various years amounting in the aggregate to more than £300. During the past year the accommodation in the Physiological and Pathological Departments has been greatly increased, and a Students' Club has been opened in the Hospital, containing a Dining Room, Reading Rooms, and a large Gymnasium.

COLLEGE.—A residential College is in course of erection upon a site immediately contiguous to the Hospital to accommodate about 60 Students in addition to the Resident Staff of the Hospital.

For prospectus and further information apply to the Dean, Dr. Perry Guy's Hospital, London, S.E.

# CHARING CROSS HOSPITAL MEDICAL SCHOOL.

The WINTER SESSION, 1888-89, will commence on Monday, October 1st.

The Hospital has a service of 230 beds for Clinical Teaching, including those of the adjoining Royal Westminster Ophthalmic Hospital, to which General Students are free.

TWO ENTRANCE SCHOLARSHIPS of the value of 100 guineas and 50 guineas respectively are awarded annually in October.

A SCHOLARSHIP of the value of 50 guineas is open to students from the University of Oxford who have passed the 1st M.B. Examination, and to Students from the University of Cambridge who have passed the 2nd M.B. Examination, and who have not entered at any London Medical School.

Candidates for the above Scholarships are required to give notice of their intention to compete on or before Monday, September 24th.

FEES.—For the curriculum of Study required by the various examining bodies and hospital practice, 90 guineas in one sum, or 100 guineas in five instalments. The composition fee for Dental Students is £42 2s., payable in two instalments.

\*\* The hours of Lectures have been specially arranged to suit the convenience of Dental Students. Charing Cross Hospital is within three minutes' walk of the Dental Hospital of London.

UNIVERSITY OF LONDON.—*Preliminary Science Instruction*.—Arrangements have been made for Students desirous of undergoing a Course of Instruction in Science, such as that required for the Preliminary Scientific (M.B.) Examination of the University of London, to attend at the Normal School of Science, South Kensington.

A prospectus containing much additional information will be forwarded on application to the Librarian and Secretary, Mr. J. Francis Fink, at the Office of the School, Chandos Street, Charing Cross, between the hours of 10 and 4.

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## THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

**THE WINTER SESSION** will OPEN on **MONDAY, OCTOBER 1st**, at Three P.M., when the Prizes awarded during the previous Winter and Summer Sessions will be distributed by **SIR ARTHUR T. WATSON, Bart, Q.C.**, and an Introductory Address will be delivered by **W. Foster, Esq., M.A., F.C.S.** At 4.30 P.M. a Reception will be held in the School Buildings.

The **ANNUAL DINNER** of the past and present Students and their Friends will take place the same evening at the Holborn Restaurant, at 7 o'clock, **Dr. SIDNEY COUPLAND** in the chair.

### HOSPITAL STAFF AND LECTURERS.

Consulting Physicians—**Dr. Goodfellow, Dr. Henry Thompson, Dr. Greenhow, F.R.S.**

Physicians—**Dr. Cayley, Dr. Sidney Coupland, Dr. Douglas Powell, Dr. D. W. Finlay.**

Assistant Physicians—**Dr. J. K. Fowler, Dr. C. Y. Bliss, Dr. J. J. Pringle.**

Obstetric Physician—**Dr. Arthur W. Edis.**

Consulting Physician to Skin Department—**Dr. Robert Liveing.**

Physician to Skin Department—**Dr. J. J. Pringle.**

Assistant Obstetric Physician—**Dr. W. Duncan.**

Consulting Surgeons—**Mr. Shaw, Mr. Nunn.**

Surgeons—**Mr. Hulke, F.R.S., Mr. George Lawson, Mr. Henry Morris, Mr. Andrew Clark.**

Assistant Surgeons—**Mr. A. Pearce Gould, Mr. J. Bland Sutton.**

Ophthalmic Surgeon—**Mr. William Lang.**

Anral Surgeon—**Mr. Arthur Hensman.**

Consulting Surgeon-Dentists—**Sir John Tomes, F.R.S., Mr. Turner.**

Dental Surgeon—**Mr. Storer Bennett.**

Assistant Dental Surgeon—**Mr. W. Hern.**

Other Lecturers—**Mr. B. T. Lowne, Mr. Foster, Dr. W. J. Mickle.**

The Hospital contains 310 Beds. There are Special Departments for Cancer, Syphilis, Diseases of Women and Children, Diseases of the Eye, Skin, Throat and Ear, and for cases requiring Electrical Treatment.

The school buildings have been recently much extended, the additions including a new Theatre, Library, Physiological Laboratory, Materia Medica Museum, Students Room, and Luncheon Room.

Two Entrance Scholarships, value £100 and £60, will be competed for on September 27th and following days.

Inclusive Fee £100, or by three yearly instalments of £45, £40, and £25.

Preliminary Science Instruction.—Arrangements have been made for Students desirous of undergoing a Course of Instruction in Science, such as that required for the Preliminary Scientific (M.B.) Examination of the University of London, to attend at the Normal School of Science, South Kensington.

The Residential College adjoining the Hospital provides accommodation for thirty Students. The Warden assists students in preparing for examination. For further information apply at the Hospital to the Resident Medical Officer, or to **A. PEARCE GOULD, Dean.**

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THIS Home was opened on the 25th of August, to give to men, women and children who have recovered from illness the benefits of a temporary Eastbourne home, with good food and careful attention. Associated with the London Homœopathic Hospital, it aims at being essentially an Eastbourne institution, resting upon local influence and local subscriptions.

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Annual Subscriptions and Donations may be contributed through the Matron of the Home, Miss Batt; or sent by Cheque or Money Order payable to G. A. Cross, Secretary; or to any of the members of the Committee; or to the Honorary Secretaries, Miss Florence Lewis, Meadhurst, and Miss Sutton, South Street, Eastbourne.

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12

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SESSION 1888-89.

The Royal College of Science supplies as far as practicable a complete Course of Instruction in Science applicable to the Industrial Arts, especially those which may be classed broadly under the heads MINING, ENGINEERING, and CHEMICAL MANUFACTURES.

A Diploma of Associate of the College is granted at the end of the Three Years' Course, the required conditions being complied with.

Four Royal Scholarships of the value of £50 yearly each, with free admission to the Lectures and Laboratories, are attached to the College. Two are offered for competition each year to associate students, not being Royal Exhibitioners, on the completion of their First Year's Course.

A Silver Medal is awarded at the conclusion of the second year on the examination results of the first and second year's Associate Students.

The Fees payable by Non-Associate Students are—£2 for each separate Course of Lectures, £1 for half course of Experimental Physics, or £10 for all the Lecture Courses of a Faculty, for the Session. For Analytical Chemistry, £2 for a special course of one month, £5 for three months, £9 for six months, £12 for the entire Session. For Physical Laboratory, £1 per month (one hour per day), £6 for the Session (ditto), for six hours per day £3 per month. For Assaying, £5 for three months, £9 for six months, £12 for the entire Session. For Zoological Laboratory, £2. Botanical Laboratory, £2. For Drawing School, £3 for the Session, £2 for one Term.

The Chemical and Physical Laboratories and the Drawing Schools are Open Daily for Practical Instruction.

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<i>Descriptive Geometry, Drawing, Engineering, and Surveying</i> ..	Professor THOMAS F. PIGOT, C.E., M.R.I.A.
<i>Chemistry (Theoretical and Practical), Metallurgy, &amp;c.</i> .....	Professor W. N. HARTLEY, F.R.S., F.C.S., F.R.S.E., Dean of Faculty for Session.
<i>Experimental Physics (Theoretical and Practical)</i> .....	Professor W. T. BARRETT, F.R.S.E., M.R.I.A.
<i>Geology and Palaeontology</i> .....	Professor ED. HULL, M.A., LL.D., F.R.S.
<i>Mining and Mineralogy</i> .....	Professor J. P. O'REILLY, C.E., M.R.I.A.
<i>Botany</i> .....	Professor M'NAB, M.D., F.L.S.
<i>Zoology</i> .....	Professor A. C. HADDON, M.A., F.Z.S., M.R.I.A.

The Courses of Chemistry, Botany, and Zoology are recognised by the Royal University of Ireland, and Certificates of attendance are granted to medical and other students attending the Courses, and the Chemical, Botanical, and Zoological Laboratories.

The Lectures of the Professors of Botany and Zoology are also recognised as qualifying for graduation in the University of Edinburgh.

THE SESSION COMMENCES on MONDAY, OCTOBER 1st.

Programmes may be obtained on application at the College, or by letter addressed to the Secretary, Royal College of Science, Stephen's Green, Dublin.

Professor J. P. O'REILLY, Secretary.

## THE MASON COLLEGE, BIRMINGHAM.

SESSION 1888-89.

## FACULTIES OF ARTS AND SCIENCE.

The Session commences on MONDAY, OCTOBER 1, 1888.

Students under sixteen are required to pass a Preliminary examination.

SYLLABUSES, containing complete information as to the various courses of Instruction, Fees, Lecture days and hours, Entrance and other Scholarships, Prizes, &c., may be obtained from CORNISH BROTHERS, New Street, Birmingham; price 6d., by post 8d.

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The EVENING CLASSES for Minor Students are now held on Monday, Wednesday, and Friday evenings at 7.30. Fee, One Guinea per Month. The next COURSE of LECTURES for the December and February Examinations will commence on Thursday, October 25th. Fees to December, Six Guineas; to February, Ten Guineas.

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## The Chemist and Druggist of Australasia.

**AUGUST 1, 1888.**

**CONTENTS OF No. 8, Vol. 3.**

**Editorial Notes:**—"The Centennial Exhibition," "The Rules of the Pharmaceutical Society of New South Wales," "The Pharmacy Act of Queensland," "The Qualifying Age for Pharmacists," "Wholesale Dealings in Poisons," "Buying from Hawkers," "A Vague Charge."

### COLONIAL REPORTS.

*New South Wales.*—Pharmacy Board (Official Report); Pharmaceutical Society (Full Report of Special General Meeting).

*New Zealand.*—Pharmacy Board of New Zealand, and Chemists' and Druggists' Association, Auckland; The New Zealand Customs Bill; Claim for 400l. Damages for the loss of an Eye; Trade Topics, &c.

*Queensland.*—Pharmacy Board (Official Report); Use of Queensland Plants.

*South Australia.*—Monthly Council Meeting of Pharmaceutical Society; Progress Regarding Pharmacy Bill; Omissions of Errors in Pharmacy Act; Trade Topics, &c.

*Victoria.*—Pharmacy Board and Pharmaceutical Society; General News.

**Correspondence.**—Our Wholesale Supplies; Bee-keeping for Pleasure and Profit; The Loofah.

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The 66th SESSION BEGINS 1st OCTOBER, 1888.

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5. Regulations regarding the Certificate in Public Health.
6. Regulations regarding the Scottish Triple Qualification.

**ALEXANDER DUNCAN, B.A.,**

Faculty Hall, St. Vincent Street,  
Glasgow, September, 1888.

SECRETARY.

**U**NIVERSITY COLLEGE, BRISTOL.—MEDICAL SCHOOL.  
The WINTER SESSION will commence on Monday, October 1.

### LECTURERS.

*Medicine*—E. Markham Skeritt, M.D. Lond., B.A., F.R.C.P., and R. Shingleton Smith, M.D. Lond., B.Sc., F.R.C.P.

*Surgery*—N. C. Dobson, F.R.C.S., and J. Greig Smith, M.B., C.M., M.A.

*Anatomy*—W. H. Harsant, F.R.C.S.

*Practical Anatomy*—Demonstrator, R. R. Whishaw, F.R.C.S.

*Physiology*—Lecturer, G. Munro Smith, M.R.C.S.

Assistant Lecturer, J. Michell Clarke, M.A., M.B. Cantab., M.R.C.P.

*Chemistry*  
*Practical Chemistry* } T. Coomber, F.C.S.

*Botany*—Prof. A. Lippner.

*Materia Medica and Therapeutics*—A. B. Prowse, M.D. Lond., F.R.C.S.

*Practical Physiology and Histology*—G. F. Atshley, M.B. Lond.

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*Practical Pathology and Morbid Anatomy* } Edin.

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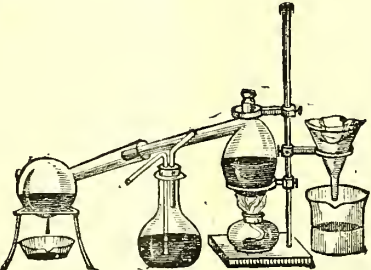


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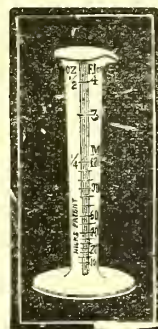
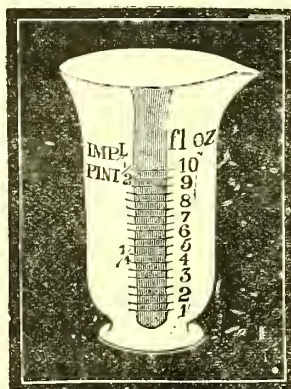
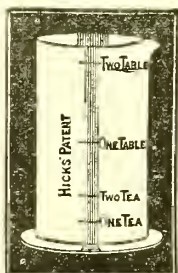






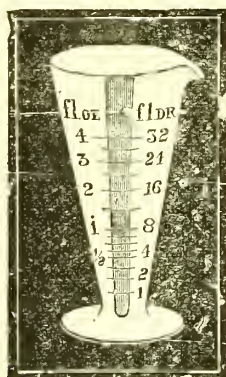

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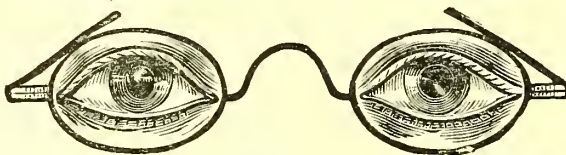
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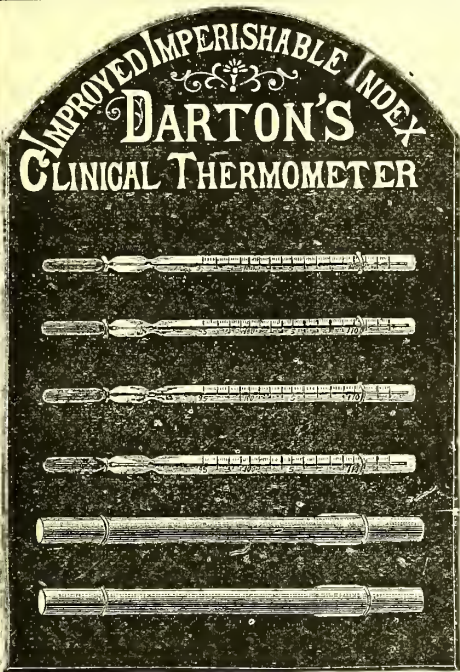
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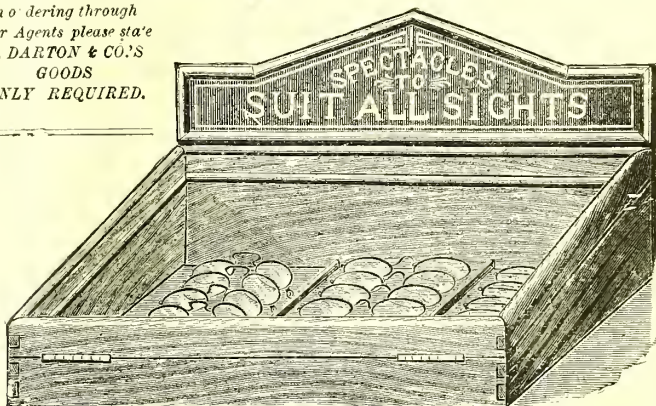
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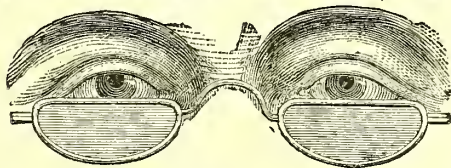
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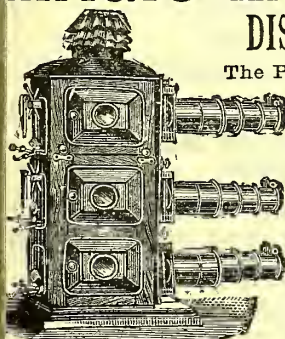
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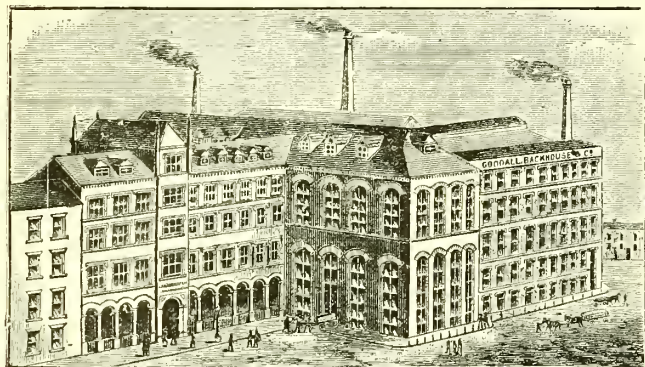
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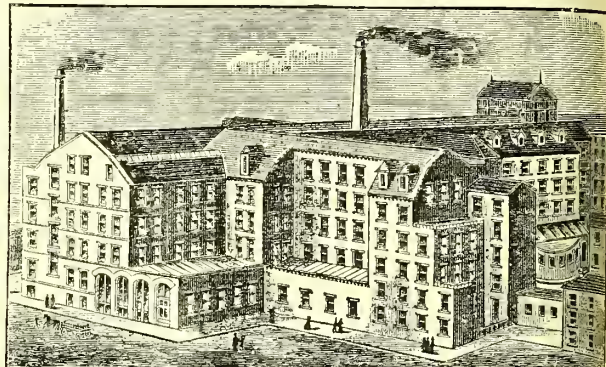
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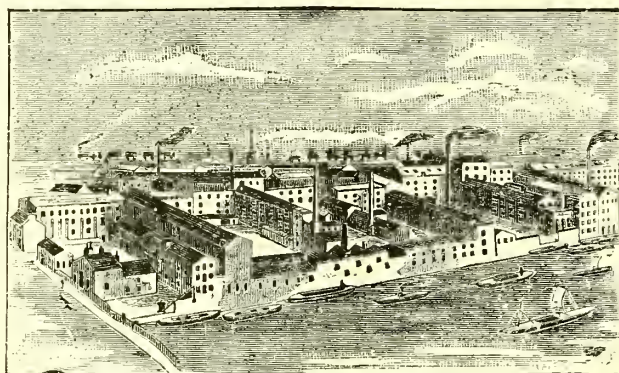
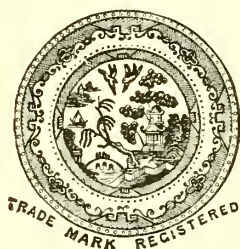
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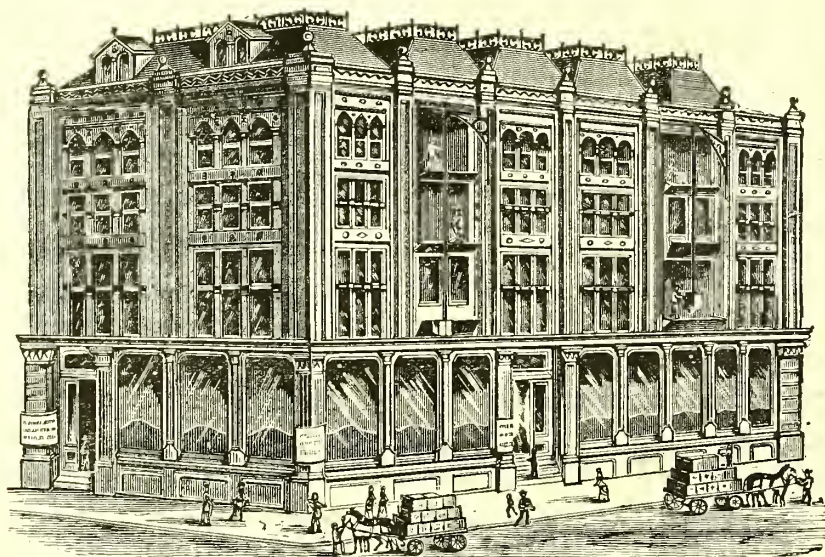
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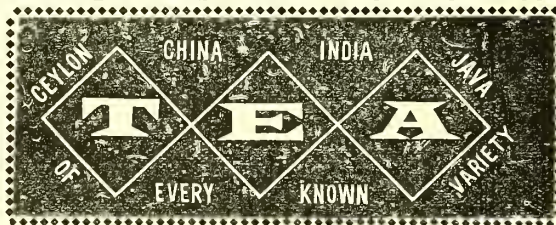
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**COD-LIVER OIL**

Allen and Hanbury  
Brekke and Howlid  
Burroughs, Wellcome  
Evans, Sons and Co.  
Hill, A. S., and Son  
Lofden Cod Liver Oil Co.  
Lorimer and Co.  
Smith, T. J.  
Woolley, Sons and Co.  
Wright, Layman and Umney

**COFFEE**

Symington Co. (Griffin Est.)

**COMPRESSIBLE TUBES**

Betts and Co.  
Brooks, H., Peel and Co.

**COMPRESSD MDCNS**

Allen and Hanbury's  
Burroughs, Wellcome and Co.  
Hooper, B., and Co.

**CONFECTIONERY**

Gibson, R., and Sons  
Kerfoot, T.  
Warwick Brothers

**CONCENTD. LIQS.**

Evans, Sons and Co.  
Fletcher, Fletcher & Stevenson  
Keith, B., and Co.

**CORN CURBS**

Maw, Son and Thompson  
Robinson, R.  
Thompson, M. F.

**COTTON WOOL**

Haynes, G., & Co. (Absorbent)  
Maw, Son and Thompson  
Robinson and Sons (Absorbent)  
Sanger, J., and Sons  
Seabury and Johnson

**DENTIFRICES**

Du Boyer, Marie  
Jewbury and Brown  
Newbery and Sons  
Sutton, O., and Co.  
Thompson and Capper  
Woolley, W. (Araea Nat)

**DISINFECTANTS**

Albunar Paper Co.  
Chemical Carbon Co., Ltd.  
(Cones)  
Government Sanitary Co.  
Hornby, A.  
Hygienic Paper Co.  
National Chemical Co.  
New Carholie Sanitary Co., Ltd.  
Quell Bros.  
Sanitas Co.

**DISINTEGRATES**

Cartier, J. H.  
Hardy Patent Pick Co., Lim.

**DOG MEDICINES**

Spratts (Patent)

**DRUGGISTS' SUN.**

Ayrton and Sanders  
Evans, Leisner and Wals  
(Hawley's Counter Adjuncts)  
Evans, Sons, and Co. (Savara)  
Hill, A. S., and Son  
(Food)  
Lynch and Co.  
May, Roberts and Co.  
Newbery, F., and Sons  
Sanger and Sons  
Schutze, F., and Co.  
Tapp and Co.  
Thompson, Millard and Co.  
Tozwood, W.  
Wood, Vincent

**DRUMS, CANS, &c.**

Noskes and Co.

**EAU DE COLOGNE**

Farina, J. M.

**EFFERVESCENT**

Allen and Hanbury's (Saline)  
Bishop, A., and Sons  
Fritz and Co.

**ELECTRIC APPAR**

Colthurst & Harding (Electric Light Oil)  
Darton, F., and Co.  
Orma and Co.

**EMEROCATION**

Barrett, Joshua  
Clark, W.

**ENEMAS**

Ingram and Son  
Maw, Son and Thompson  
Sanger and Son  
Schutze, F., and Co.

**ENGRAVERS**

Barker, W., and Son  
Corsau, J. R. (Glass)  
Harris, A. J. (Glass)

**ESSENCES, FRUIT****AND SOLUBLE**

Brady and Hinchliffe  
Burgoyne, Burbridge and Co.  
Bush, W. J., and Co.  
Bush, W. J., Son and Co.  
Cunmook, J.  
Goodall, Backhouse and Co.  
Hay, W.  
Idris and Co.  
Lorimer and Co.  
May and Baker  
Oldfield, Pattinson and Co.  
Stevenson and Howell  
Tyner, P. (Anchovies)  
Woolley, Sons and Co.

**ESSENTIAL OILS**

Bush, W. Son and Co.  
Bush, W. J. (Lemons, &c.)  
Cocking (Japan Peppermint)  
Cunmook, J.  
Evans, Sons and Co.  
Jackson, J., and Co.  
May and Baker  
Nascio, Aveline and Co.  
Ryke, Tompsett (Eucalyptus)  
Stevenson and Howell  
Sykes and Co.  
Vost, G.  
Warwick Brothers  
Wright, Layman and Umney

**ETHER**

Duncan, Flockhart and Co.

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Rocke, Tompsett and Co. (Antiseptic Poultice and Vinegar)

**EUCALYPTUS OIL**

Downie, B. I. P. Co.  
Fletcher, Fletcher & Stevenson

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Brand and Co.  
Johnston's Fluid Beef  
L'Esig Co.

**EXTRACTS, FLUID**

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Barker, G., and Co.  
Burgoyne, Burbridge  
Evans, Sons & Co.  
Fletcher, Fletcher & Stevenson  
Hearon, Squire and Francis  
Oldfield, Pattinson and Co.

**FEEDING BOTT.**

Hearn, E. A., and Co.

**FLY PAPERS**

Lockin, Wilson and Co.  
Kilner Bros.  
Maw, Son and Thompson  
May Roberts and Co.  
Pozock, Keovil and Co.  
Thompson, Millard and Co.  
Tozwood, W.

**FILTERING**

Wilson, S.  
Dunton and Co.  
Marston Swan, and Wollist  
Black & Brownlow  
Silcock & Co. (Filtr Co.)

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Bush, W. J. and Co.

**FOOD WARMERS**

Clarke, S.

**FOOD (Infants & Invalids)**

Allen and Hanbury  
Benger's Pancreatized  
Brand and Co.  
Dahl's Dispersia Cakes

**FOOD (Squid & Malted)**

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Hearon, Squire (Malted)  
Johnston's Fluid Beef  
Lazenby, E., and Son  
Liebig Co.

**FOOD (Malted)**

Maclean and Son  
Mortershead and Co. (Benger's Food)

**FOOD (Malted)**

Nestle, H.  
Ridge, Dr. Food  
Van Abbott (Diabatic)

**FORMULE**

Brooks, T.

**GINGER ALE**

Kjundmond and Co.  
Hay, W. (Essence)  
Mills, R. M.

**GLYCERINE**

Fink  
Martindale, W. (Nitro-Glycerine Tablets)  
Maw, Son and Thompson  
Price's Candle Co.

**GRANULAR PREP.**

Bishop, A., and Sons  
Burroughs, Wellcome and Co.  
Bush, W., and Co.  
Evans, Sons and Co.  
Hearon, Squire and Francis  
Hill, A. S., and Son  
Kerfoot, T.  
Wright, Layman and Umney

**GUMS**

Fink (Arabic, &c.)

**GUTTAPERCHA**

Duncan, Flockhart and Co.

**HAIR PREP.**

Bates, F. W. (Frizzetta)  
Brodie, J. (Imperial Hair Dye)  
Chesbrough Mfg. Co.

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Newball and Mason  
Oldfield, Pattinson and Co.  
Potter and Clarke

**HERBALISTS**

Newball & Mason (Ext. of Herbs)  
Potter and Clarke  
Wilkinson, A., and Sons (Compressed Hops)

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Keene and Ashwell  
Leath and Ross  
Thompson and Capper  
Ward, J. J., and Co.

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Hay, W.

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Fletcher, Fletcher & Stevenson  
Rymes & Co.  
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Bowley and Draper  
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Godfrey and Cooke  
Maw, Son and Thompson  
Tozwood, W.

**INSECTICIDES**

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Greiff, R. W., and Co.  
Sanford  
Steiner and Co.  
Vost, G.

**KETCHUP**

Tyrer, P.

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Clarke, Samuel ("Fairy")

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Fitch and Nottingham  
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**LINSEED**

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Kerfoot, T.  
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May, Roberts and Co.  
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Bush, Son and Co.  
Dunmord  
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Hill and Sons, A. S.  
Kerfoot, T. (Citrate)  
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Oscar Andree and Co.

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Phillips, G., and Co.

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Edwards and Son  
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Feaining's (Powders)  
Holloway (Pills and Oint.)  
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Lincoln (Clarke's Mix.)  
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Newbery and Sons  
North Medicine Co.  
Pear's Soap (Dirty Boy)  
Royal Perfumery Co.  
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 y, John, and Sons  
**TING**  
 and Stone  
 n Bros.  
 nile Apparatus Co.  
 Shapland and Co.  
 clock, H.  
 send, J. (Exeter)  
**ILINE**  
 , G. and G.  
**NINE SALTS**  
 ers, F. W., & Co.  
 rde and Sons  
 y, B.  
 andre and Co.  
 lin, T.  
 nermann  
**INET**  
 er's (Essence of)  
 an, Flockhart and Co.  
 sen and Jorgensen  
 eld, Pattinson and Co.  
**CHARIN**  
 and Hanbury  
 oughs, Wellcome and Co.  
**ICINE**  
 arlan and Co.  
 h, T. and H., and Co.

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 Whiffin, T.  
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 Edinburgh Glasgow  
 Guy's Hospital  
 Homeopathic Establishment  
 Liverpool School  
 London Homeopathic and Medical School  
 London Hospital and Medical School  
 Mason's College  
 Middlesex Hospital  
 Nursing Institute  
 Owen's College  
 Polytechnic Institute  
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 Tully, J.  
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 Ingram and Royle  
 Phillips, G., and Co. (Pure Spirits of Wine)  
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Absorbent Cotton (Lawton), 2 oz., 8/ doz.; 4 oz., 12/6 doz.; 16 oz., 36/ doz.

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Antipyrin, Powder, Crystals, 3/5 oz., and 5 gr. Tabloids.

Antipyrin, Effervescent (Bishop), 33/ per doz.

Artificial Sponges (B. W. & Co.), 24/ per gr. Plain 18/.

Atomisers, Steam (Codman & Shurtleff's), 18/9

Beef and Iron Wine. Dose, 2 to 4 dr., 1/2 lb. bottles, 22/; 1 lb., 42/ doz.

Caffein Citrate (Bishop's Effervescent), 20/ doz.

Caffein Hydrobromate (Bishop's Effervescent), 20/ doz.

Cashmere Bouquet Soap (Colgate & Co.), 10/ doz.

Cashmere Bouquet Extract (Colgate & Co.), 1 oz., 22/ doz.; 2 oz., 30/9 doz.

Chlorodyne (New Formula), 1 oz., 14/ doz.; 8/ per lb.

Cod Liver Oil (Kepler), 'Pure and Palatable,' 8 oz., 16/; 16 oz., 24/ doz.

Dialysed Iron (Wyeth), 4 oz., 27/ doz.; 3/6 per lb.

Drug Mill (B. W. & Co.), 36/ 54/ 90/ each.

Elixoids (or Palatable Mixtures), 8 oz. and 1 lb. bottles.

'Etna' Stoves, 20/ each.

Eucalyptia (Eucalyptine). Pure oil E. Globulus, 2 oz., 15/ doz.; 1 lb., 8/

Fairchild Preparations:

Pepsin in Scales (Pure), 1/2 oz., 20/; 1 oz., 63/ per doz.

Pepsin, Powdered (Pure), 1/2 oz., 20/; 1 oz., 63/ per doz.

Zymine (Ext. Pancreatis), Pure, 1/2 oz., 20/; 1 oz., 63/ per doz.

Zymine Peptonising Powders, 12 tubes in box, 18/ doz. boxes.

Pepsin Tabloids, 25 in bot., 14/; 100 in bot., 42/ doz.

Zymine Tabloids, 25 in bot., 18/; 100 in bot., 48/ doz.

Zymine Comp. Tabloids, 25 in bot., 18/; 100 in bot., 48/ doz.

Zyminised Suppositories (Meat) 1/2 22/ per doz. boxes.

Zyminised Suppositories (Milk) 1/2 22/ per doz. boxes.

Trypsin, Pure. Solvent for Diphtheritic Membrane. 1 drachm

bots., 54/ doz.

Peptonising Apparatus, 10/ each.

Fellows' Syr. Hypophosphites, lbs., stamped, 7/; less than 1 doz., 65/; per doz., 60/; unstamped, 12/ doz. less; 1/2 lb. 4/; less than 1 doz., 38/; 1 doz., 34/; unstamped, 6/ per doz. less; special terms for large quantities. Net prices.

Florida Water (Murray & Lanman), 26/ 13/6 8/ doz.

Hazeline. (Best preparation of Hamamelis), 4 oz., 14/ doz.; 1 lb., 42/ doz.

Hypodermic 'Tabloids' (Compressed Drugs), in tubes, containing from 12 to 20 Tabloids, 1/ per tube.

Aconitine (Duquesnel), 1/263 gr.

Apomorphia Hydrochlorate, 1/10 gr. and 1/15 gr.

Atropia Sulphate, 1/150 gr., 1/100 gr. and 1/62 gr.

Caffeine Sodio-Salicylate, 1/2 gr.

Cocaine Hydrochlorate, 1/6 gr. and 1/2 gr.

Codeine Phosphate, 1/4 gr.

Colchicin, 1/100 gr.

Cornutin, 1/60 gr.

Hypodermic Tabloids—continued.

Curare, 1/12 gr.

Digitalin, 1/100 gr.

Ergotin, 1/150 gr. and 1/30 gr.

Eserine Salicylate, 1/100 gr.

Homatropine Hydrochlorate, 1/250 gr.

Hydrarg. Perchlor., 1/60 gr. and 1/35 gr.

Hyoscine Hydriodate, 1/230 gr. and 1/75 gr.

Hyoscyamine Sulphate (Merck), 1/80 gr. and 1/20 gr.

Morphia Bi-Meconate, 1/8 gr., 1/6 gr., 1/4 gr., and 1/3 gr.

Morphia Sulphate, 1/12 gr., 1/8 gr., 1/6 gr., 1/4 gr., 1/3 gr., and 1/2 gr.

Morphia Sulphate, 1/12 gr., with Atropia Sulphate, 1/250 gr.

Morphia Sulphate, 1/8 gr., with Atropia Sulphate, 1/200 gr.

Morphia Sulphate, 1/6 gr., with Atropia Sulphate, 1/180 gr.

Morphia Sulphate, 1/4 gr., with Atropia Sulphate, 1/150 gr.

Morphia Sulphate, 1/3 gr., with Atropia Sulphate, 1/120 gr.

Morphia Sulphate, 1/2 gr., with Atropia Sulphate, 1/100 gr.

Pilocarpine Hydrochlorate, 1/10 gr., 1/3 gr., and 1/2 gr.

Quinine Hydrobromate, 1/2 gr.

Sclerotic Acid, 1/2 gr. and 1 gr.

Strychnia Sulphate, 1/150 gr., 1/120 gr., and 1/60 gr.

Strophanthin, 1/500 gr.

Hypodermic Needles and Mounts, 1/4 each.

Hypodermic Syringes, 7/ each; solid silver in case, 10/ each.

Hypodermic Pestle and Mortar, 3d. each.

Hypodermic Pocket Cases (B. W. & Co.), for 6 to 12 tubes, 5/ each; fitted complete with syringe, &c., and 6 tubes, 15/ each; ditto and 12 tubes, 20/; 12 tubes and silver syringe, 25/

Inhaler, Chloride of Ammonium (Veierker), 90/ doz.

Kepler Extract of Malt, 3/ lb., 22/ doz.; 1 1/2 lb., 38/ doz.

Kepler Extract of Malt Combinations.

Kepler Solution of Cod Liver Oil in Malt, 3/4 lb., 22/; 1 1/2 lb., 38/ doz.

'Lanoline' (Liebreich), 3/6 lb.; 7 lb. tins, 3/3 lb.

" Anhydrous, 4/ lb.

" Cold Cream, 14/ doz.

" Pomade, 14/ doz.

" Soap, 8/ doz.

" Eucalyptine Soap, 8/ doz.

" Mercurial Ointment, 33 1/3 per cent., 4/6 lb.

" Veterinary Ointment, for Hoof and Hide, 2/ lb.

Toilet Lanoline, 4/6 doz.

Lundborg's Perfumes, 1 oz., 19/3 2 oz., 30/9.

Medicine Cases. } (B. W. & Co.). Various prices

Medicine Chests. } according to size.

Medicine Droppers, 2/ and 3/ doz.

Menthol Plasters (with racks), 7/9 doz. } stamped.

Menthol Plaster, in 1 yd. rolls, 42/ doz. }

Nux Vomica Extract (Bishop's Effervescent), 12/.

Paper-Fibre Lint (for Surgeons and Dentists), 1/2 lb., 30/ doz.; 1 lb., 48/ doz.

Pepsin Saccharated. Dose, 5 to 15 grs., 1 oz., 22/ doz.

Pharmaceutical Stills (Remington), 3 galls., 170/; 5 galls., 200/ each.

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# PHARMACY UP TO DATE.

(Continued from page 34, bottom folio)

Pol (Essentia Pinus Pumilionis Pura), 15/ and 24/ doz.  
 Pol. bottles.  
 Pol Extract, (for Baths, Plasters, &c.), 9/ doz.  
 Pol Inhalers.  
 Pol Pastilles, 9/ doz.  
 Pol Atomisers, 120/ doz.  
 Prescription Books, 2/ doz.; leather covers, 1/; Russia  
 leather, 2/6.  
 Frington's 'Pharmacy,' 21/ each.  
 Scharin, 'Soluble' (B., W. & Co.), 90 per cent., 1/4 oz.  
 bot., 14/ doz.; also in Powder and Tablets.  
 Sol, in Crystals, 1/3 oz., and 5 gr. Tablets.  
 Sophanthus Tincture, 1/2 oz., 4/; 1 oz., 6/ doz.; per lb., 6/;  
 and 'Tablets.'  
 Sphonal, in Crystals, and 5 gr. Tablets.  
 Snes' Lac Bismuthi. Dose, 1 drachm in water, 8 oz.,  
 24/; 1 lb., 48/ doz.  
 Snes' Lac Bismuthi et Cerii. Dose, 1 drachm in water,  
 8 oz., 30/; 1 lb., 48/ doz.  
 Snes' Ol. Lavand. Rect., 8 oz., 126/ doz.; 1 lb., 252/ doz.  
 Snes' Urethral Irrigator (Harrison's), 78/ doz.  
 Snes' Syr. Hydrobrom. Dose, 1 drachm, 8 oz., 30/ doz.  
 'abloids' and 'Tablets' (*Trade Marks*) of Compressed  
 Drugs.  
 Ammon. Bromide, 5 gr., 100 in bottle, 22/ doz.; 10 gr., 100 in bottle,  
 32/ doz. Dose, 1 or 2.  
 Ammon. Chloride, 3 gr. ovals, 4/6 doz.; 100 in bot., 12/6 doz.; 5 gr.,  
 100 bot., 18/ doz.; 10 gr., 100 bot., 22/ doz. Dose, 1 slowly dis-  
 solved.  
 Ammon. Chlor. with Borax. 100 in bot., 22/ doz. Dose, 1 slowly  
 dissolved.  
 Antifebrin, 2 gr. Dose, 1 to 6. 25 in bot., 12/6 doz.; 100 in bot.,  
 24/ doz.  
 Antipyryn, 5 gr. Dose, 3 to 6. 25 in bot., 22/ doz.; 100 in bot.,  
 70/ doz.  
 Bismuth Subnitrate, 5 gr., 100 in bot., 28/ doz.; 10 gr., 100 in bot.,  
 42/ doz. Dose, 2 to 4 after meals.  
 Caffeine Citrate, 1 gr. Dose, 2 or 4. 100, 36/ doz.  
 Cascara Sagrada Ext., 2 gr. Dose, 1 or 2. 25 in oval bot., 1/7/6  
 doz.; 100, 22/ doz.  
 Cascara (1 gr. dry ext.), Eucalyptin (1 gr.), and Nux. Vom.  
 (1-16 gr.) Dose, 1 to 4. 25 in oval bot., 14/ doz.; 100, 48/ doz.  
 Cathartic Comp., U.S.P. Dose, 1 to 3. 25 in oval bot., 7/6 doz.;  
 100, 18/ doz.  
 Charcoal, 5 gr. Dose, 2 to 6 or more. In oval bot., 7/6 doz.; 100,  
 14/ doz.  
 Chloral Hydrate, 5 gr. Dose, 2 to 3. 100 in bot., 24/ doz.  
 Chloramine, for the throat and voice. 25 in bot., 12/ doz.  
 Cinchonidine Salicylate, 2 gr. Dose, 2 to 4. 100 in bot., 90/ doz.  
 Cocaine with Potash and Borax (*Voice*). Dose, 1 slowly dissolved.  
 25 in oval bot., 1/8/6 doz.; 2/ size, 80 in box, 16/ doz.  
 Ipecac. and Opium (Dover's Powder), 5 gr. Dose, 1 to 4. In oval  
 bot. of 25. 8/6 doz.; 100 in bot., 32/ doz.  
 Ipecac. Powder, 5 gr. Dose, 2 dissolved in water as an emetic,  
 100 in bot., 16/ doz.  
 Iron and Quinine Citrate, 3 gr. Dose, 1 to 4. 25 in bot., 8/6 doz.;  
 100 in bot., 32/ doz.  
 Laxative Vegetable. Dose, 1 or 2. 25 in oval bot., 7/6 doz.; 100  
 in bot., 18/ doz.  
 Lithia carbonate, 2 gr. Dose, 2 or 3 thrice daily. 100 in bot.,  
 32/ doz.  
 Manganese Dioxide, 2 gr. Dose, 1 to 5. 25 in bot., 8/6 doz.; 100,  
 32/ doz.  
 Nitro-Glycerine (Trinitrine), 1-100 and 1-50 gr. Dose, 1. 25 in  
 oval bot., 7/6 doz.; 100, 18/ doz.  
 Pepsin Pure, 1 gr. Dose, 1 to 5. 25 in oval bot., 14/ doz.; 100,  
 42/ doz.  
 Pepsin Saccharated, 5 gr. Dose, 1 to 3. 100 in bot., 32/ doz.  
 Peptonic. Dose, 1 or 2 after meals. 25 in oval bot., 14/ doz.; 100  
 in bot., 48/ doz.  
 Potash Bicarb., 5 gr. Dose, 1 to 4. 25 in oval bot., 4/6 doz.; 100  
 in bot., 12/6 doz.  
 Potash Chlorate, 5 gr. 30 in box, 4/; 30 in oval bot., 4/6 doz.;  
 100, box or bot., 8/6 doz. Dose, 1 slowly dissolved in the mouth.  
 Potash Chlorate with Borax. Dose, 1 slowly dissolved in the  
 mouth. 30 in box, 4/ doz.; 30 in oval bot., 4/6 doz.; 100 in box  
 or bot., 8/6 doz.  
 Potash nitrate (*Sal Prunella*). Dose, 1 slowly dissolved in the  
 mouth. 100 in bot., 14/ doz.

## 'Tablets' and 'Tablets'—continued.

Potash Permanganate, 1 gr., 100 in bot., 18/ doz.; 2 gr., 100 in bot.,  
 32/ doz. Dose, 1 or 2.  
 Potassium Bromide, 5 gr., 100 in bot., 18/ doz.; 10 gr., 100 in bot.,  
 32/ doz. Dose, 1 or 2.  
 Potassium Iodide, 5 gr. Dose, 1 or more with meals. 100 in bot.,  
 36/ doz.  
 Quinine Bisulphate (soluble), 1/2 gr., 50 in oval, 8/ doz.; 100, 12/ doz.;  
 1 gr., 36 in oval, 8/ doz.; 100, 15/ doz.; 2 gr., 24 in oval, 8/ doz.;  
 100, 24/ doz.; 3 gr., 24 in oval, 12/ doz.; 100, 34/ doz.; 5 gr., 24 in  
 oval, 17/6; 100, 50/ doz.  
 Quin. Bisulph., 1 gr.  
 Iron Hypophos., 2 gr. Dose, 1 thrice daily after meals, swal-  
 lowed or previously dissolved in water.  
 Arsenic, 1/50 gr. 100 in bot., 36/ doz.  
 Strych. Sulph., 1/50 gr.  
 Saccharin, 1/100 gr.  
 Rhubarb Comp., 3 gr. Dose, 1 to 5. 24 in oval box, 7/6 doz.  
 100, 22/ doz.  
 Rhubarb and Magnesia, 5 gr. Dose, 1 to 5. 24 in oval, 7/6 doz.;  
 100, 22/ doz.  
 Rhubarb and Soda, 5 gr. Dose, 1 to 5. 24 in oval, 7/6 doz.; 100,  
 22/ doz.  
 Rhubarb, 3 gr. Dose, 2 to 4. 24 in oval, 7/6 doz.; 100, 22/ doz.  
 Saccharin, 1/2 gr. 25 in tube, 1/6, 4/ doz.; 60 in tube, 1/8/ doz.; in  
 oval bot. of 200, 2/6, 24/ doz. These contain 90 per cent. of pure  
 Saccharin. Substitute for sugar in diabetes.  
 Salol, 5 gr. Dose, 1 or 2. 100 in bot., 48/ doz.  
 Soda Bicarbonate, 5 gr. Dose, 1 to 6. 30 in oval bot., 4/6 doz.;  
 100, 12/6 doz.  
 Soda Chlorate, 5 gr. Dose, 1 to 4, slowly dissolved. 100 in bot.,  
 22/ doz.  
 Soda Chlorate and Borax, 5 gr. Dose, 1 to 4, slowly dissolved.  
 25 in ovals, 7/6 doz.; 100, 18/ doz.  
 Soda-Mint (or *Neutralising Tablet*). Dose, 1 to 4. 25 in oval,  
 7/6 doz.; 100, 18/ doz.  
 Soda Salicylate, 3 gr., 100 in bot., 23/ per doz.; 5 gr., 100 in bot.,  
 38/ doz. Dose, 1 to 4.  
 Soda Sulpho-carbolate, 5 gr. Dose, 1 to 3. 100 in bot., 28/ doz.  
 Sodium Bromide, 5 gr., 100 in bot., 18/; 10 gr., 100 in bot., 32/  
 doz. Dose, 2 to 4.  
 Sodium Iodide, 5 gr. Dose, 1 or more with meals. 100 in bot.,  
 48/ doz.  
 Strophanthus (2 minims of Tincture in each). 50 in oval bot., 8/5  
 doz.; 100, 16/ doz.  
 Sulphonal. Dose, 1 to 4. 25 in bot., 48/ doz.; 100, 144/ doz.  
 Tannin. Dose, 1 or more as a styptic. 100 in bot., 22/ doz.  
 Test Tablets (for preparing Fehling's Solution). Test for sugar.  
 18/ doz.  
 'Thirst-quenchers' (contain citric acid, &c.), 8/ doz.

Tonic Comp. { Iron Pyrophos., 2 gr. }  
 { Quinine 1 gr. } Dose, 1 with meals.  
 { Strychnine, 1-100 gr. }

25 in oval bot., 12/6 doz.; 100, 35/ doz.  
 Trinitrine (*Nitro-glycerine*), 1-100 gr. and 1-50 gr. Dose, 1. 25 in  
 oval, 7/6 doz.; 100, 18/ doz.  
 Trinitrine and Amyl Nitrite. Dose, 1. 25 in oval, 12/ doz.; 100,  
 36/ doz.

Trinitrine Comp. { Trinitrine, 1-100 gr. }  
 { Nitrite of Amyl, 1/4 gr. } Dose, 1.  
 { Capsicum, 1-50 gr. }  
 { Menthol, 1-50 gr. }

25 in oval, 12/6 doz.; 100, 35/ doz.  
 Urethane, 5 gr. Dose, 1 to 4. 25 in bot., 16/ doz.; 100, 40/ doz.  
 Voice (Potash, Borax, Cocaine). Dose, 1 slowly dissolved. 30 in  
 box, 8/ doz.; in oval bot., 8/6 doz.; 80 in box, 15/ doz.  
 Zinc Sulphate, 1 gr., 100 in bot., 18/ doz.  
 „ Sulpho-carbolate, 2 gr., 100 in bot., 18/ doz.  
 Zymine (3 grs. Ext. Pancreatis). 25 in bot., 18/ doz.; 100, 43/ doz.  
 „ Comp. (Ext. Pancreatis, Ipecac., and Bismuth Subnitrate).  
 25 in bot., 18/ doz.; 100, 43/ doz.

## 'Tablets' of Triturated Drugs:

In bottles of 100, 8/6 doz., and tubes of 25, 4/6 doz.  
 Aconite Tinct., 1 min.  
 Arsenious Acid, 1/100 gr. and 1/50 gr.  
 Belladonna Tinct., 1 min.  
 Calcium Sulphide, 1/10 gr.  
 Capsicum Tinct., 1 min.  
 Digitalis Tinct., 1 min.  
 Hydrarg. Perchlor., 1/100 gr.  
 Hydrarg. cum Creta (Grey Powder), 1/3 gr.  
 Hydrarg. Subchlor. (Calomel), 1/10 gr.  
 Hyoscyamus Tinct., 1 min.  
 Nux Vomica Tinct., 1 min.  
 Tinct. Camph. Co. (Paregoric), 2 min.

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# PHARMACY UP TO DATE.

(Continued from page 35, bottom folio)

## 'Tabloids' of Triturated Drugs—continued.

In bottles of 50 and tubes of 25—

Anti-constipation { Aloin, 1/5 gr.  
Belladonna Ext., 1/8 gr.  
Strych., 1/63 gr.  
Ipecac., 1/16 gr.

Apomorphine Muriate, 1/50 gr.

Atropine Sulph., 1/100 gr.

Digitalin, 1/100 gr.

Euonymin Resin, 1/8 gr.

Hydrarg. Iod. Rub., 1/20 gr.

Hydrarg. Iod. Vir., 1/8 gr.

Morphine Sulphate, 1/20 gr. and 1/8 gr.

Opium Tinct. (Laudanum), 2 min.

Pilocarpine Muriate, 1/20 gr.

Podophyllin (Resin), 1/4 gr.

Santonin, 1/2 gr.

Strephanthus Tinct., 2 min.

Leather Pocket Case No. 22 to contain 10 tubes, empty 1/6, fitted 5/ each

" " No. 23 " 16 " " 2/6, " 8/6 "

" " No. 24 " 24 " " 7/ " 14/ "

Tampons Vaginal (B., W. & Co.), 36/ gross.

Terebene, Pure (B., W. & Co.), 1 oz., 8/6 ; 2 oz., 12/ ; 8 oz., 24/ ; 16 oz., 45/ doz.

Tincture Press (B., W. & Co.), 11/ and 13/ each.

## Valoid Fluid Extracts:

*Equivalent Liquid, or Fluid Extracts, of Definite Standard Strength.*

Each pound of valoid represents the medicinal properties of one pound of pure drug, inclusive of *alkaloid*, *resinoid*, or other active principles.

The drugs are first assayed, tested, or critically examined, those of inferior quality or deficient in amount of active principles being discarded, and those only employed which are of full standard strength.

Our process of cold repercolation completely exhausts the drug of all medicinal properties, and the menstruum employed is such as to hold them permanently in solution and preserve them indefinitely in any climate.

Valoids are the most convenient and reliable form of drug for the preparation of Tinctures, Syrups, Decoctions, Infusions, &c. In every case the Valoid Extract may be taken as the exact equivalent of the drug.

Aconite Root. Dose, 1 to 2 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Aconitum Napellus*)

One to seven rectified spirit makes the Tinctura Aconiti, B.P.

Actæa Racemosa. Dose, 10 to 30 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Cimicifuga Racemosa*, *Black Cohosh*.)

One to seven proof spirit makes Tinct. Cimicifugæ, B.P.

Arnica Root. Dose, 5 to 20 min. 4 oz., 2/ ; 1 lb., 7/ each.

(*Arnica Montana*.)

One to nineteen rectified spirit makes Tinct. Arnicæ, B.P.

Bael Fruit. Dose, 1 to 2 drachms. 4 oz., 2/ ; 1 lb., 7/ each.

(*Egle Marmelos*.)

Belladonna Leaves. Dose, 2 to 3 m. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Atropa Belladonna*.)

One to nineteen rectified spirit makes Tinct. Belladonnæ, B.P.

One to one chloroform makes a very useful application to be applied on Burroughs' Paper-Fibre Lint; is more useful and decidedly cleaner than Belladonna Plaster.

Blackberry. Dose, 1 to 1 drachm. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Rubus Villosus*.)

Black Haw. Dose, 10 to 30 min. 4 oz., 2/6 ; 1 lb., 8/6 each.

(*Viburnum Prunifolium*.)

One to five Kepler Malt Extract makes Malt and Viburnine.

Black Willow. Dose, 1 to 1 drachm. 4 oz., 2/ ; 1 lb., 7/ each.

(*Salix Nigra*.)

Boldo Leaves. Dose, 10 to 20 min. 4 oz., 2/7 ; 1 lb., 9/ each.

(*Boldoa Fragrans*.)

One to four rectified spirit makes Tinct. Boldo.

Bryony. Dose, 5 to 30 min. 4 oz., 2/ ; 1 lb., 7/ each.

(*Bryonia Alba*.)

One to seven proof spirit makes Tinct. Bryoniæ.

Buchu. Dose, 1 to 2 drachms. 4 oz., 2/ ; 1 lb., 7/ each.

(*Barosma betulina*.)

One to seven proof spirit makes Tinct. Buchu, B.P.

Half-ounce in 10 oz. distilled water makes Infusum Buchu, B.P.

Butternut. Dose, 20 to 60 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Juglans cinerea*.)

Calumba. Dose, 1 to 1 drachm. 4 oz., 1/3 ; 1 lb., 6/ each.

(*Fateorrhiza Calumba vel Cocculus Palmatus*.)

One to seven proof spirit makes Tinct. Calumbæ, B.P.

Half-ounce in 10 oz. in distilled water makes Infusum Calumbæ, B.P.

## Valoid Fluid Extracts—continued.

Cannabis Sativa. Dose, 2 to 5 min. 4 oz., 3/ ; 1 lb., 1c/ each.

(*Indian Hemp*.)

Five to seventeen rectified spirit makes Tinct. Cannabis Indica, B.P.

Capsicum. Dose, 2 to 5 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Capsicum Fastigiatum*.)

One to twenty-six rectified spirit makes Tinct. Capsici, B.P.

One to seven Lanoline, or sprinkled on Burroughs' Paper-fibre Lint, as good rubefacient in place of mustard-plaster, &c.

Cascara Sagrada (Tasteless). Dose, 10 min. to 1/2 drachm. 4 oz., 1/9 ; 1 lb., 6/ each.

(*Rhamnus Purshiana*.)

Free from all inert matter, and containing all the valuable constituents of the bark, entirely devoid of excessive bitterness, miscible with water, &c.

Catechu. Dose, 5 to 30 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Uncaria Gambier*.)

Chamomile. Dose, 1 to 1 drachm. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Anthemis Nobilis*, *Chamomile*.)

Half-ounce in 10 oz. distilled water makes Infusion of Chamomiles.

Chiretta. Dose, 1/2 to 1 drachm. 4 oz., 2/ ; 1 lb., 7/ each.

(*Ophelia Chirata*.)

One to seven proof spirit makes Tinct. Chiratae, B.P.

Quarter-oz. in 10 oz. distilled water makes Infusum Chiratae, B.P.

Cinchona Calisaya. Dose, 1/2 to 1 drachm. 4 oz., 2/1 ; 1 lb., 7/6 each.

(*Calisaya Bark*.)

Especially rich in alkaloids.

Cinchona, Red. Dose, 1 to 1 drachm. 4 oz., 2/1 ; 1 lb., 7/6 each.

(*Cinchona Succinbra*.)

One to four proof spirit makes Tinct. Cinchonæ, B.P.

One oz. Valoid Fluid Extract, 1/2 oz. Aromatic Sulphuric Acid with distilled water to one pint makes Infusum Cinchonæ Acidum, B.P.

Coca. Dose, 1 to 4 drachms. 4 oz., 2/ ; 1 lb., 7/ each.

(*Erythroxylon Coca*.)

One to forty-nine distilled water makes Infusum Cocæ.

One to twenty-nine of sherry or port makes Vinum Cocæ.

Collinsonia. Dose, 1/2 to 2 drachms. 4 oz., 3/6 ; 1 lb., 12/ each.

(*Collinsonia Canadensis*.)

One to nine proof spirit makes Tinct. Collinsoniæ Canadensis.

Colchicum. Dose, 2 to 5 min. 4 oz., 2/ ; 1 lb., 7/ each.

(*Colchicum Autumnale*.)

One to seven proof spirit makes Tinct. Colchici, B.P.

One to nine sherry makes the Vinum Seminum Colchici.

One to seven Aromatic Spirit of Ammonia makes Tinct. Colchici Comp.

Colocynth. Dose, 5 to 15 min. 4 oz., 2/1 ; 1 lb., 7/6 each.

(*Citrullus Colocynthis*.)

One to nine rectified spirit makes Tinct. Colocynthisidis.

Conium. Dose, 3 to 10 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Conium Maculatum*.)

One to seven proof spirit makes Tinct. Conii, B.P.

Convallaria. Dose, 10 to 20 min. 4 oz., 2/6 ; 1 lb., 8/6 each.

(*Convallaria Majalis*.)

One to seven proof spirit makes Tinct. Convallariæ.

Cornus Florida. Dose, 1 to 1 drachm. 4 oz., 2/7 ; 1 lb., 9/ each.

Coto Bark. Dose, 2 to 6 min. 4 oz., 3/6 ; 1 lb., 12/ each.

(*Para-coto*.)

One to nine rectified spirit makes Tinct. Coto.

Cotton Root Bark. Dose, 1 to 2 drachms. 4 oz., 2/7 ; 1 lb., 9/ each.

(*Gossypium Herbaceum*.)

One to three proof spirit makes Tincture of Cotton Root Bark.

Cubebs. Dose, 5 to 20 min. 4 oz., 3/6 ; 1 lb., 12/ each.

(*Cubeba Officinalis*.)

One to seven rectified spirit makes Tinct. Cubebæ, B.P.

Damiana. Dose, 1 to 2 drachms. 4 oz., 2/7 ; 1 lb., 9/ each.

(*Turnera Microphylla*.)

Digitalis. Dose, 2 to 5 min. 4 oz., 2/6 ; 1 lb., 8/6 each.

(*Digitalis Purpurea*.)

One to seven proof spirit makes Tinct. Digitalis, B.P.

Twenty-eight min. in 10 oz. distilled water makes Infusum Digitalis, B.P.

Ergot. Dose, 10 to 60 min. 4 oz., 3/ ; 1 lb., 10/ each.

(*Claviceps Purpurea*, *Ergot*.)

One to three proof spirit makes Tinct. Ergot, B.P.

Quarter-oz. in 10 oz. distilled water makes Infusum Ergotæ, B.P.

Eucalyptus. Dose, 15 to 60 min. 4 oz., 2/3 ; 1 lb., 8/ each.

(*Eucalyptus Globulus*.)

One to thirty-nine distilled water makes Decoction Eucalypti.

One to four rectified spirit makes Tinct. Eucalypti.

Five to three white sugar dissolved therein makes Syrupus Eucalypti.

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## PHARMACY UP TO DATE.

(Continued from page 33, bottom folio)

## Valoid Fluid Extracts—continued.

Euonymus. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/7; 1 lb., 9/ each.  
(*Euonymus Atropurpureus*, Wahoo.) Made from young bark.  
One to four rectified spirit makes Tinct. Euonymi.  
Gelsemium. Dose, 3 to 5 min. 4 oz., 2/7; 1 lb., 9/ each.  
(*Gelsemium Sempervirens*.)  
One to seven proof spirit makes Tinct. Gelsemium, B.P.  
Gentian. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 1/9; 1 lb., 6/ each.  
(*Gentiana Lutea*.)  
Ginger. Dose, 5 to 40 min. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Zingiber Officinale*.)  
One to seven rectified spirit makes Tinct. Zingiberis, B.P.  
One to one rectified spirit makes Essentia Zingiberis, B.P.  
Grindelia Robusta. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/6; 1 lb., 8/6 each.  
Guaiacum. Dose, 1 to 2 drachms. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Guaiacum Officinale*.)  
One to four Spirit Ammon. Arom. makes Tinct. Guaiaci Ammon., B.P.  
Guarana. Dose, 20 to 30 min. 4 oz., 5/; 1 lb., 16/ each.  
(*Paullina Sorbilis*.)  
One to three proof spirit makes Tinct. Guaranae.  
Hamamelis. Dose, 1 to 10 min. 4 oz., 2/1; 1 lb., 7/6 each.  
(*Hamamelis Virginica*.)  
One to nine proof spirit makes Tinct. Hamamelidis.  
Hazeline is the best form of this drug.  
Hydrastis. Dose, 10 to 30 min. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Hydrastis Canadensis*.)  
One to nine proof spirit makes Tinct. Hydrastis.  
Hyoscyamus. Dose, 5 to 10 min. 4 oz., 3/6; 1 lb., 12/6 each.  
(*Hyoscyamus Niger*.)  
One to seven proof spirit makes Tinct. Hyoscyami, B.P.  
Ipecacuanha. Dose, 5 to 60 min. 4 oz., 3/6; 1 lb., 12/6 each.  
(*Cephaelis Ipecacuanha*.)  
One to nine proof spirit makes Tinct. Ipecacuanhae.  
Five to ninety simple syrup makes Syrup Ipecacuanhae.  
Jaborandi. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Pilocarpus Pennatifolius*.)  
One to three proof spirit makes Tinct. Jaborandi, B.P.  
Half-oz. in 10 oz. distilled water makes Infusum Jaborandi, B.P.  
Jalap. Dose, 15 to 60 min. 4 oz., 2/; 1 lb., 7/ each.  
(*Exogonium Purga, Jalap*.)  
One to seven proof spirit makes Tinct. Jalapae, B.P.  
Jamaica Dogwood. Dose,  $\frac{1}{2}$  to 2 drachms. 4 oz., 2/3; 1 lb., 8/ each.  
(*Piscidia Erythrina*.)  
Juniper. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/3; 1 lb., 8/ each.  
(*Juniperus Communis*.)  
Kava Kava. Dose, 10 to 60 min. 4 oz., 3/6; 1 lb., 12/ each.  
(*Piper Methysticum*.)  
One to seven proof spirit makes Tinct. Kava Kavae.  
Kola Nut. Dose, 10 to 30 min. 4 oz., 3/; 1 lb., 10/ each.  
(*Cola Acuminata*.)  
Koroniko. Dose, 10 to 60 min. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Veronica Salicifolia, Koroniko*.)  
One to four proof spirit makes Tinct. Koroniko.  
Leptandra. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Leptandra Virginica*.)  
One to four Aromatic Spirit of Ammonia makes Tinct. Leptandrae Ammoniatæ.  
Lobelia. Dose, 3 to 5 min. 4 oz., 2/; 1 lb., 7/ each.  
(*Lobelia Inflata*.)  
One to seven proof spirit makes Tinct. Lobeliae, B.P.  
One to seven Spirit of Ether makes Tinct. Lobeliae Ether, B.P.  
Lupulus. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/7; 1 lb., 9/ each.  
(*Humulus Lupulus*.)  
Half-oz. in 10 oz. distilled water makes Infusum Lupuli, B.P.  
One to seven proof spirit makes Tinct. Lupuli, B.P.  
Nux Vomica. Dose, 2 to 5 min. 4 oz., 2/7; 1 lb., 9/ each.  
(*Strychnos Nux Vomica*.)  
Five to seventeen rectified spirit makes Tinct. Nucis Vomicae, B.P.  
(One fluid oz. tincture contains 1 gr. total alkaloids and keeps quite clear.)  
Orange Peel (Bitter). Dose,  $\frac{1}{2}$  to 2 drachms. 4 oz., 2/4; 1 lb., 8/ each.  
(*Citrus Vulgaris*.)  
One to nine proof spirit makes Tinct. Aurantii, B.P.  
One of Tinct. to seven simple syrup makes Syrup Aurantii, B.P.  
One to nineteen distilled water makes Infusum Aurantii, B.P.  
Pinus Canadensis. Dose, 10 to 30 min. 4 oz., 2/3; 1 lb., 8/ each.  
(*Hemlock Pine*.)  
Podophyllum. Dose, 10 to 30 min. 4 oz., 2/3; 1 lb., 8/ each.  
(*Podophyllum Peltatum*.)  
Two to two Aromatic Spirit of Ammonia makes Tinct. Podophylli Ammoniatæ. Does not precipitate when mixed with water.  
Dose, 20 min. to one drachm.

## Valoid Fluid Extracts—continued.

Pareira Root. Dose,  $\frac{1}{2}$  to 2 drachms. 4 oz., 1/9; 1 lb., 6/ each.  
(*Chondodendron Tomentosum*.)  
One and a quarter with distilled water to twenty makes Decoctum Pareiræ, B.P.  
Poke Root. Dose, 2 to 10 min. 4 oz., 3/; 1 lb., 10/ each.  
(*Phytolacca Decandra*.)  
One to nine equal parts rectified spirit and water makes Tinct. Phytolaccae.  
The Extract sprinkled on 'Burroughs' Paper-Fibre Lint is an excellent substitute for Glycerine and Belladonna.  
Pulsatilla. Dose, 2 to 5 min. 4 oz., 2/7; 1 lb., 9/ each.  
(*Anemone Pulsatilla*.)  
(One to nine proof spirit makes Tinct. Pulsatillæ.)  
Rhatany. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/1; 1 lb., 9/ each.  
(*Krameria Triandra*.)  
One to seven proof spirit makes Tinct. Krameria, P.P.  
Half-oz. in 10 oz. distilled water makes Infusum Krameria, B.P.  
Rhubarb. Dose, 20 to 40 min. 4 oz., 2/7; 1 lb., 9/ each.  
(*Rheum Officinale*.)  
Quarter-oz. in 10 oz. distilled water makes Infusum Rhæi, B.P.  
Sanguinaria. Dose, 10 to 15 min. 4 oz., 2/4; 1 lb., 8/ each.  
(*Sanguinaria Canadensis*.)  
Two to eighteen proof spirit makes Tinct. Sanguinaria, U.S.P.  
Sarsaparilla. Dose, 1 to 2 drachms. 4 oz., 2/3; 1 lb., 8/ each.  
(*Smilax Officinalis*.)  
One to seven distilled water makes Decoctum Sarsæ, B.P.  
Sarsaparilla Comp. Dose, 1 to 5 drachms. 4 oz., 2/3; 1 lb., 8/ each.  
Two to ten distilled water makes Decoctum Sarsæ Comp., B.P.  
Senega. Dose, 10 to 20 min. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Polygala Senega*.)  
One to seven proof spirit makes Tinct. Senegæ, B.P.  
Half-oz. in 10 oz. distilled water makes Infusum Senegæ, B.P.  
Eight oz. Valoid Fluid Extract, 90 min. Solution of Ammonia, 30 oz. white sugar and distilled water to 50 oz. makes Syrup Senegæ, U.S.P.  
Senna. Dose, 1 to 4 drachms. 4 oz., 1/9; 1 lb., 6/ each.  
(*Cassia Officinalis*.)  
One to seven Kepler Malt Extract or simple syrup makes a palatable aperient for ladies and children.  
Serpentaria. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Aristolochia Serpentina*.)  
One to seven proof spirit makes Tinct. Serpentariae, B.P.  
Quarter-oz. in 10 oz. distilled water makes Infusum Serpentariae, B.P.  
Squill. Dose, 5 to 60 min. 4 oz., 2/7; 1 lb., 9/ each.  
(*Urginea Scilla*.)  
One to seven proof spirit makes Tinct. Scillæ, B.P.  
Stillingia. Dose, 1 to 2 drachms. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Stillingia Sylvatica*.)  
Stillingia Comp. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Alterative Comp*) MacDade's formula.  
Stramonium Seeds. Dose, 2 to 5 min. 4 oz., 2/6; 1 lb., 8/6 each.  
(*Datura Stramonium*.)  
One to seven proof spirit makes Tinct. Stramonii, B.P.  
Taraxacum. Dose, 1 to 2 drachms. 4 oz., 1/9; 1 lb., 6/ each.  
(*Taraxacum Dens Leonis*.)  
Triticum Repens. Dose, 1 to 3 drachms. 4 oz., 2/3; 1 lb., 7/6 each.  
One to nineteen distilled water makes Decoctum Tritici Repentis.  
Uva Ursi. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/; 1 lb., 7/ each.  
(*Arctostaphylos Uva Ursi*.)  
Half-oz. in 10 oz. distilled water makes Infusum Uvæ Ursi, B.P.  
Valerian. Dose, 15 to 30 min. 4 oz., 2/; 1 lb., 7/ each.  
(*Valeriana Officinalis*.)  
One to seven proof spirit makes Tinct. Valerian, B.P.  
One to seven Spirit Ammon. Arom. makes Tinct. Valerian Ammon., B.P.  
Half-oz. in 10 oz. distilled water makes Infusum Valerian, B.P.  
Veratrum Viride. Dose, 2 to 4 min. 4 oz., 2/3; 1 lb., 8/ each.  
(*Green Hellebore*.)  
One to four rectified spirit makes Tinct. Veratri Viridis, B.P.  
Wild Cherry. Dose,  $\frac{1}{2}$  to 1 drachm. 4 oz., 2/; 1 lb., 7/ each.  
(*Prunus Virginiana*.)  
Valoid Fluid Extract  $\frac{1}{2}$  oz., Glycerine 2 oz., simple syrup to two pints makes Syrup. Pruni Virginianæ.  
Valoid Fluid Extract 8 oz., distilled water 15 oz., rectified spirit 25 oz., makes Tinct. Pruni Virginianæ.  
Yerba Santa. Dose, 10 to 40 min. 4 oz., 3/; 1 lb., 10/ each.  
(*Eriodictyon*.)  
One to five Kepler Malt Extract makes Malt and Yerbine.

Wound Pads, Plain and Antiseptic. 36/ per gross.

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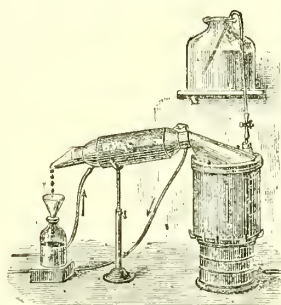
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See "CHEMIST AND DRUGGIST," December 15th, 1874.

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ESTABLISHED 1859.

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THE CHEMISTS' AND DRUGGISTS' DIARY, 1889.—Wholesale and manufacturing firms are requested to get their advertisements ready for our forthcoming DIARY, which is now in course of preparation. In consequence of pressing representations from Australian subscribers, we shall close earlier than before, so that space should be engaged promptly. This diary is now an almost universal desk companion of English speaking druggists all over the world.

### POST-CARD COMPETITION.—No. 9.

#### DESIGNS FOR A CHEMIST'S SHOP.

In No. 8 competition we received a number of designs for "An Improved Ground Plan for a Small Pharmacy," and as the subject is one which is capable of some development we propose to hold over those designs and to use them in the competition which we now announce. We ask now that subscribers or their assistants will, between this and September 30, send us on post-cards ground plans of a small pharmacy, or of any part of a pharmacy (dispensing department, poisons section, laboratory, storehouse, &c.), indicating the measurements if possible. The plans may be original designs, or the already executed ideas of competitors may be the bases of the sketches. The usual prize of one guinea will be awarded; but as we have taken out from No. 8 competition the cards which apply to this one, we shall give an extra guinea prize for the best sketch from among those thus removed.

### "THE ART OF DISPENSING."

WE have to record a very flattering response to our announcement of the publication of this useful treatise on the methods and processes involved in compounding medical prescriptions. The orders which we have received for the book have been so numerous that the binders have had difficulty in keeping pace with the demand; but we are now receiving daily deliveries of the finished volumes at our office, and are able to fill all orders as received. The reception of "The Art of Dispensing" quite justifies us in saying that it fills up a real gap in pharmaceutical literature. Our object has been to make it a thoroughly practical book, one which should be in daily use in the pharmacy, and as valuable to the qualified pharmacist as to the apprentice and junior assistant. The following is the table of contents:—

General Suggestions	Mixtures
Weights and Measures	Quinine Mixtures
Prescribers and Dispensers	Mistura Varia
Special Drugs and Dispensing Conveniences	Emulsions
Special Drugs and Chemicals	Hager on Emulsions
Pills and their Excipients	Ince on Emulsions
Ingredients of Pills and How to Mass Them	Lotions, Liniments, and Injections
Excipients	Incompatibles
Coating Pills	Dispensing Foreign Prescriptions
Tablets and Pastils	New Remedies
Capsules	Homeopathic Dispensing
Powders	Illegible Prescriptions
Suppositories, Bougies and Peraries	Examination Prescriptions
Ointments	Appendix (including French, German, and Latin prescription terms, and posological table)
Plasters	
Jellies	Index

The book is conveniently arranged in chapters with the above-mentioned headings, so that all the commonly recurring forms of medication are discussed. The index has been made as complete as possible, so as to facilitate reference. As intimated in our last issue the book is a handsome octavo volume of 290 pages, and is strongly bound in black cloth gold lettered. The published price (net) is 3s. 6d., or post free 3s. 10d. It may be ordered from the wholesale houses of the trade, who will invoice it at 3s. 6d. net, and send it with ordinary goods, thus saving the price of postage. The following firms will hold stock of the book:—

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Names of other firms will be added to this list as we receive instructions from them. We cannot send single copies to any wholesale house for enclosure.

THE CHEMIST AND DRUGGIST OF AUSTRALASIA, published monthly at our Melbourne office, can be supplied to subscribers outside Australasia at 5s. per annum, payable in advance, and commencing at any date. Chemists interested in the drug trade and the pharmaceutical affairs of the Australasian Colonies will find a full record of all events affecting their occupation in *The Chemist and Druggist of Australasia*. Single copies can be supplied at 6d. each. Application should be made by English or American subscribers to the office at 42 Cannon Street, London.

ADVERTISEMENTS of employers and assistants can be received by us up to the first post on Friday mornings, and will be inserted in the current week's issue.



# CORNER FOR STUDENTS.

CONDUCTED BY RICHARD J. MOSS, F.C.S., F.I.C.

## QUALITATIVE ANALYSIS.

THE subject of the next exercise in qualitative analysis will be a mixture of two salts. It is to be submitted to a thorough systematic analysis, such as is required to detect its constituents and to demonstrate the absence of all other substances. Students' reports should contain a concise account of the work done, with a list of the metals and the acid radicles detected, distinguishing those which may be regarded as accidental impurities.

Students' applications for portions of the mixture will be received up to September 29, and the samples will be sent to applicants a few days later.

Students' reports will be received up to October 20.

## REPORTS.

The mixture of salts sent to our correspondents for the last analysis consisted of three parts of disodic phosphate and one part of potassic nitrate. The calculated composition of the mixture was:—

Na	..	..	..	..	..	..	9.64
K	..	..	..	..	..	..	9.65
H	..	..	..	..	..	..	.21
PO <sub>4</sub>	..	..	..	..	..	..	19.90
NO <sub>3</sub>	..	..	..	..	..	..	15.35
H <sub>2</sub> O	..	..	..	..	..	..	45.25
							100.00

It will be observed that in a mixture of this composition sodium and potassium are present in almost exactly equal quantities by weight.

The analysis of this mixture presented several points of interest. In the first place the mixture dissolved in water to an alkaline solution, and contained the phosphoric radicle, so that a number of the metals could not be present. Some of our correspondents overlooked this point, and assigned a composition to the mixture inconsistent with its solubility. The detection of potassium presented a difficulty in some cases. In the ordinary course of an analysis the solution that is examined for potassium contains chlorides, and even if hydrochloric acid is not added there is not much risk of the quantity of chlorine present being insufficient to form the insoluble double chloride of potassium and platinum. In the present case some of our correspondents added platonic chloride to a concentrated solution of the mixture of salts and did not succeed in obtaining any precipitate. This is easily explained. There was no potassium chloride present to combine with the platonic chloride. The mixture contained potassium in the form of nitrate, and even a concentrated solution of potassium nitrate gives a very slight precipitate with platonic chloride, until hydrochloric acid is added, when a copious precipitate appears. A concentrated solution of the mixture of salts gave a distinct precipitate when hydrochloric acid was added to it along with platonic chloride. But the proper way to apply the test is to evaporate the liquid to dryness at a moderate temperature, after the addition of the platonic chloride and hydrochloric acid, and then treat the residue with alcohol. In the presence of phosphates this procedure could not well be followed, as the phosphates are all insoluble in alcohol, and unless the phosphoric radicle were specially separated it would be present in the solution, which would be tested for potassium in the ordinary course

of the analysis. It was necessary, therefore, to separate the phosphoric radicle if one wished to adopt a method which was not open to objection. A convenient way of effecting this object was by adding barium chloride to the neutral solution prepared for the examination for potassium, filtering, precipitating the excess of barium by adding ammonium carbonate, again filtering, and evaporating the solution with hydrochloric acid, and igniting. This plan yielded a residue free from phosphoric acid, and from all acids which form insoluble compounds with barium, including sulphuric acid, which also interferes somewhat with the detection of potassium.

In detecting nitric acid by the ferrous sulphate test, the presence of a phosphate was inconvenient, as a whitish precipitate of ferrous phosphate was formed when the ferrous sulphate was added to the liquid to be tested. Now, supposing that an excess of ferrous sulphate was not employed, and that sulphuric acid was poured down the side of the test-tube containing the liquid with this precipitate in suspension, it is not unlikely that the student would report that no brown ring was formed. The brown ring owes its colour to a compound of nitric oxide, with ferrous sulphate, and in the absence of the latter salt in solution there would be no brown ring. Now, under the conditions referred to there would be no ferrous sulphate in solution until the sulphuric acid had diffused into the upper liquid and decomposed the phosphate. This diffusion took place quickly, but the quantity of ferrous sulphate so produced was not sufficient at once to give a decided reaction. When ferrous sulphate was employed in decided excess the brown ring formed instantly, and was altogether unmistakable. Crystallised ferrous sulphate should be employed in this test, as the solution is rapidly oxidised; if a solution is used it should always be freshly prepared.

## PRIZES.

The First Prize for the best analysis has been awarded to A. H. OWEN, Stanpit, Christchurch.

The Second Prize has been awarded to H. H. ROBINS, 10 New Cavendish Street, W.

## Marks Awarded for Analyses.

A. H. Owen (1st prize) ..	95	H. Hamers ..	55
H. H. Robins (2nd prize) ..	92	R. H. Richards ..	50
J. C. Kidd ..	90	John Parry ..	45
Herbert Brown ..	88	Beginner ..	40
Colin M. Barnes ..	85	E. K. ..	35
E. W. ..	85	W. G. Longbottom ..	30
W. Wilson ..	65	F. P. B. ..	25
Ajax ..	60	J. Sidebottom ..	10
T. Peers ..	60		

## TO CORRESPONDENTS.

*Prizes.*—The students to whom prizes are awarded are requested to write at once to the Publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as second prize.

\* \* All communications should include the names and addresses of the writers.

C. M. BARNES.—Most of your conclusions are based upon single reactions; it is desirable, and, indeed, necessary, in many cases to prove the correctness of your results by confirmatory tests.

E. W.—In testing for the acid radicles, you describe in two cases experiments with acidulated solutions, but the inferences drawn are based upon the assumption that the solutions were neutral. It was because the solution was acid that you did not get a precipitate with barium chloride, not because your solution was not strong enough.

W. WILSON.—The apparent absence of deflagration when a substance is heated on charcoal, though it might justify the inference that it was not a nitrate that you were dealing with, would not warrant the conclusion that nitrates were altogether absent; the effect produced by a small proportion

ate may readily escape observation. In this case, however, there is distinct deflagration, though you did not succeed in observing it. The chloride gave a precipitate before boiling, owing to the presence of phosphate, so your test for citric acid was misleading. On heating the mixture in a dry test-tube there was no burnt sugar odour such as evolves.

—The barium chloride precipitate was readily soluble in hydrochloric acid. It would appear that you did not add enough hydrochloric acid to neutralise the alkali present; you did not test for nitrates.

—We cannot account for the coloration of the borax bead as observed, nor for the production of the precipitate that you attributed to manganese; there was nothing in the mixture that would give such results. You can very easily prepare any quantity of a mixture of salts of the same composition, and you will find it instructive to try your work with such a mixture, and endeavour to trace the cause of the former errors.

—The test depending upon the colour produced on ignition of a salt nitrate is one which may readily mislead even in experienced hands. Many phosphates behave precisely like alumina. It is only in the case of fusible substances that any reliance can be placed on the results. A substance dissolving in water to an alkaline solution could not contain aluminium and the phosphoric radicle, as aluminium phosphate is insoluble.

—A much more detailed account of the analysis should have been given. It is impossible to give any hints that would be of use to you without more precise information as to what you actually did.

—The detection of nitric acid by the ferrous sulphate test requires some manipulative skill, and unless you have learned the precautions to be observed by actual trial under various known conditions, you are unlikely to succeed in applying the test to mixtures of unknown composition. It will repay you to try what is the smallest quantity of a substance that you can detect by this method; you can employ a 10-per-cent. solution of potassium nitrate to start with.

—The conclusion that alumina was present shows great power of deduction and a sad disregard for facts. The solution in which the chloride produced a precipitate could not have been acid, as the phosphate, which constituted the precipitate, is soluble in hydrochloric acid. A mixture having the composition you reported would not precipitate in water.

—The freshly precipitated bright yellow silver phosphate dissolves in dilute nitric acid; silver phosphate which has been coloured by the action of sunlight leaves a slight black residue.

—The mixture could not have contained magnesium sulphate and phosphoric radicle, and at the same time dissolved in water to an alkaline solution.

—If you test a sulphite with sulphuric acid you will find the result very different from that observed in this case, and the result must have been due to nitric acid. The precipitate with silver nitrate is a bright yellow by daylight; it might be mistaken for white by artificial light.

**PLOMBAGO MINES IN THE UNITED STATES.**—What are called the "rich outcroppings" of plumbago have been discovered in the town of Savoy, Mass., U.S.A., near the base of the Hoosac mountain range, and efforts are being made to form a company to sink a shaft and work the mine. Specimens of the ore shown have a soft, soapy feeling, and a dead black mark on paper or wood. The formation of the company is nearly completed, and a lease of 100 acres has been taken for 99 years.

**DRUG TRADE IN NEW ORLEANS.**—New Orleans, as the official trade statistics show, is becoming more and more an important drug-trade centre, especially as regards the increasing demand throughout the Southern States. The imports in 1887-1888 of drugs, essential oils, patent medicines, English, French, and German chemicals, pomades, druggists' sundries show an increase of over 10 per cent. for the same period of 1886-1887. The export trade has also increased with the United States of Colombia, Guatemala, British and Spanish Honduras, and Mexico. With the opening of the railroad to Denver, and low freights, the trade of the Western States have been opened to the New Orleans druggists, and take from them those products of the West which they have heretofore obtained from New Orleans. Shipments of drugs from New Orleans to the Pacific have also become a very important feature, as well as to Mexico and Arizona, while the distributing demand for shipments continues throughout Texas, Arkansas, Mississippi, Alabama, Tennessee, Florida, Louisiana, and Georgia. The sales of drugs in the United States of America and New Orleans are over \$3,000,000.

## Metropolitan Reports.

**THE MYSTERIOUS DEATH AT WALTHAMSTOW.**—On Tuesday, at the Central Criminal Court, the grand jury ignored the bill against William Barber, a chemist, who was charged with causing the death of Anne Mary French at Walthamstow.

**SUICIDE BY CARBOLIC ACID.**—An inquest was held on Wednesday on the body of a married woman, named Alice Green, who committed suicide at Liverpool Street Station, on Monday, by taking carbolic acid. She was 34 years of age, and was separated from her husband. A verdict of suicide during temporary insanity was returned.

**CRICKET.**—The Camwal (Chemists' Aerated and Mineral Waters Association, Limited) C.C. played a third match with Barclay & Son's C.C. on Saturday last. The Camwals scored 108, towards which E. M. Colls contributed 74. Barclay's men had not time to get beyond 43, which they registered for the loss of three wickets. C. Truelove was not out with 29 to his credit.

**FIRE AT BARRETT'S BOTTLE-STOPPER FACTORY.**—A serious fire occurred at the bottling factory of Messrs. Barrett & Co., 268 South Lambeth Road, patentees of a process for the manufacture of stoppered bottles, early on Tuesday morning. The origin of the fire is unknown. The firemen were early on the spot with six steamers and one manual engine. There was at first a difficulty in obtaining water, but the firemen succeeded in saving the surrounding houses. The flames rose high into the air, and about twenty minutes after the outbreak there was a loud explosion, which was heard as far off as Vauxhall on the one side, and Clapham on the other. The explosion is supposed to have resulted from the gas supply, as the steam-boiler remains intact, and no explosives are stored on the premises. The factory covered an area of about 150 feet by 50 feet, and is completely gutted, and 100 employés are thrown out of employment. With the explosion the flames flew high into the air and the roof fell in.

**VITRIOL-THROWING.**—There have been complaints in the north of London, for some time past, that certain persons, "for a lark," have amused themselves by throwing vitriol on ladies' dresses. On Monday last, at the Marylebone Police Court, William Martin (46), "of no occupation," of Holloway Road, was charged with having thrown sulphuric acid with intent to cause bodily harm to Winifred Brown, a governess, of Anson Street, Tufnell Park, also with damaging her black silk dress to the amount of 3*l.* 3*s.* The prosecutrix was going through Torriano Avenue, on her way to church. After passing the prisoner she felt something at her back as though something warm had been thrown at her. She put her left hand to her back to ascertain what it was. When she withdrew her hand she found the back of her glove covered with a reddish-coloured sticky substance, which she could not understand. With her right hand she drew out her handkerchief, and, in attempting to wipe her left hand, she found her glove was in holes, having been burnt through, and that her hand was also burnt. A lawyer, who appeared for the prisoner, admitted that the acid was thrown, but said he should contest the intent to do injury. The inspector told the magistrate that since Christmas last there had been quite 100 cases of this sort reported to the police in that neighbourhood, and special constables had to be posted in the district. During the last six Sundays up to last Sunday nothing had happened. None of the persons had identified the prisoner. Mr. Cooke ordered a remand, and offered, on the application of counsel, to admit the prisoner to bail in two sureties of 40*l.* each.

**NEW PHARMACEUTICAL WORKS.**—On Monday afternoon a small party of pharmacists were shown over the works at Dartford, which have recently been acquired by Mr. S. M. Burroughs for the extension of the manufacturing facilities of the business with which he is connected—Messrs. Burroughs, Wellcome & Co.'s. Extensive as the firm's laboratories at Wandsworth are, the enormous increase of their business during the past year has tried the working capabilities of the factories to the utmost, and only a removal to larger premises will provide for future development. Those



which have been acquired are the Phoenix paper mills, close to the railway station at Dartford, and conveniently situated on the banks of the Darent for water carriage to the Thames by the Dart. The mills stand on 10 acres of ground, about two of which are occupied by the pond which supplies the motive power for the water-engine, now to be dismantled. The buildings are of a very substantial character, especially the principal factory, which covers about 4,000 square feet, and has three floors, so that this alone will provide 12,000 square feet of floorage. This building is strongly built of yellow brick, with white brick facings, iron being used throughout in strengthening the structure, for supporting the roofs and floors, and for the window-frames. The building will be devoted to the more elegant work, such as the manufacture and packing of tabloids, while a wing at one side will be used for a powerful horizontal steam engine and the malt extract laboratory. The latter apartment used to have three floors also, but in order to make room for the proper working of six gigantic vacuum pans, the floors have been removed, and, when finished, this laboratory will present a very imposing appearance. A wing to the other side of the building (about 75 feet by 36 feet) has been cleared to the roof, and is to be fitted up as a shipping department. There are several other buildings on the grounds, two or three of which will only be used at present, and chiefly as storehouses and offices. In addition to these there is a gate-keeper's house and a good old-fashioned villa, which is to be occupied by Mr. Percy Smith, the technical manager of the factories. The work of refitting is going on apace under the direction of Mr. Hutton, and it is expected that the premises will be ready for occupation in about six weeks. All the carpentering and similar skilled labour is being executed by the firm's own workmen.

**SERIOUS CHARGE AGAINST A WHARF MANAGER.**—At the Thames Police Court, on Saturday last, Henry Kerr, of 31 Roland Gardens, Kensington, described as manager of the New Crane Wharf, surrendered to his bail on the charge of stealing goods belonging to Messrs. Hettenbach Brothers, of Fenchurch Street Avenue, and other merchants. Mr. Geoghegan defended; Mr. Thomas Beard, solicitor, watched the case for the owners of the wharf. A large number of merchants and brokers were present during the hearing of the case. The case had been before Mr. Lushington on the Saturday before, and on that occasion it transpired that at about 8.45 on the previous morning Sergeant Francis, of the Thames Police, in company with Detective Bond, saw two loaded vans leaving the New Crane Wharf, Shadwell. The officers followed them to Assembly Passage, Mile End, the premises of Mr. George Dix, and there stopped the goods as they were being unloaded. At 3.30 on Friday afternoon one of the officers saw the prisoner at the wharf and told him that Inspector Read wished to see him. He said, "Is it about those sweepings?" and received the answer, "It is about the goods you sold to Mr. Dix." Kerr said, "Yes; I sold them on behalf of the firm. I am allowed to sign their name. I have not paid the money into the other office. Whether the money should be paid into there or whether it should remain here is a question." Mr. Kerr further stated in answer to the officer that he had no permit from Her Majesty's Customs to sell coffee or coffee-sweepings. Later on the officer, together with the prisoner, Mr. Priestly, a representative of the firm, and Inspector Read, went to Wapping and looked at the goods, which were then at the police station. Mr. Priestly was asked if he considered the gutta-percha and indiarubber and other articles were sweepings, and said that he would inquire into the matter. The prisoner said that some tapioca, sago, pepper, and ivory-nuts were the remains of samples, and the gum he considered sweepings. With respect to the coffee, he said that had dropped down through the floor and had been swept up. He did not know that any of it had gone out of the warehouse. He was then told the charge by Inspector Read, and was taken into custody. Mr. Ludwig Hettenbach, merchant, of 4 Fenchurch Avenue, said he had goods stored at the New Crane Wharf. On Saturday he was shown some indiarubber and gutta-percha goods at Wapping Police Station, which he identified. He did not consider them sweepings. Inspector Read said he saw the prisoner at the City office and told him he had detained two van-loads of colonial produce, which had been carted from the wharf and sold to Mr. Dix by him (prisoner)

in the name of Cousins. Prisoner said, "I sold them by the firm's authority." Mr. Priestly said, "It's quite right. I have given him authority to sell the sweepings." They afterwards went to Wapping and saw the goods. Witness said, "Do you call these sweepings?" Mr. Priestly looked at the prisoner and said, "How did this happen?" The accused made no reply. Witness said, "Have you advised the merchants to whom those goods belong that you were about to sell them?" Mr. Priestly replied, "No; we always sell the sweepings." Witness said he did not consider they were sweepings, and should charge the prisoner with being concerned in stealing them. When the charge was read over to him he replied, "Am I charged individually? I sold them on behalf of the firm." The value of the two loads was over 200*l.*, and they were sold to Mr. Dix for 40*l.* He had not had time to communicate with the other merchants interested in the goods. On the case being further inquired into last Saturday Mr. L. Hettenbach, recalled, said since the last hearing he had been to the Wapping Police Station and examined the gutta-percha and indiarubber. The total value would be about 9*l.* He had other goods warehoused at the wharf besides these. He was shown some pepper and some sago, and he believed he had goods warehoused there similar in appearance and quality. He should not consider the gutta-percha, indiarubber, sago, or pepper as sweepings. By Mr. Geoghegan: He did not authorise the police to take the prisoner into custody. He had stored things at the wharf for many years. Samples were allowed to be sold, and often accumulated for months before they were sold. He could not say if the indiarubber and gutta-percha were his property. He did not prosecute in this case. Mr. Andrew Devitt, a colonial broker, of 6 Mincing Lane, stated he knew nothing about the affair. In answer to Mr. Sayer, chief clerk, the witness said he had seen some gum in the hands of the police. There was about 6 cwt. or 7 cwt. of it, and the value would be 10*l.* or 15*l.* That quantity might have been made up of samples. He was a broker, and his merchants had gum stored at the wharf. The wharfingers might have the right to sell the gum. The gum changed hands every day. He acted as broker to Messrs. Redfern & Alexander, and they had gum at the wharf. By Mr. Geoghegan: Samples of gum would amount to tons in a short time. What he saw was certainly not sweepings. Samples were sold without the proceeds being accounted for to the merchants. George Morris, a sampler, of 42 Arabin Road, Brockley, stated he was employed at the Crane Wharf. He drew the samples from the packages, including tapioca and gum. A clerk then came from the office and took them away. His name was Partridge, and he was clerk of the wharf. The samples were drawn by the prisoner's orders. He also drew samples of pepper, gutta-percha, and indiarubber. He should say the samples he drew were the property of the wharf. The goods that were seized by the police were entirely made up of samples and sweepings. Mr. Lushington said he could not help saying there was a good deal of unwillingness shown in the case by those from the wharf. Thomas Handley, foreman at the New Crane Wharf, said he delivered the parcels seized by the police from the wharf to the vans by direction of the prisoner. The parcels consisted of samples, and the whole of them came from the sampling floor. The coffee in the bag produced was mixed with dirt. He agreed with the last witness as to the accumulations of sampling. George Dix, a colonial broker and dealer in drysaltery produce, of 9 Mincing Lane and 13 Assembly Place, Mile End Road, said he purchased a quantity of goods from Messrs. Cousins & Co. on September 4. He made the purchase personally, and gave certain prices for particular goods. Prisoner told him the goods were sweepings. He received the invoice produced by post. On September 4 he paid the accused 46*l.* 0*s.* 10*d.* by cheque, and made it payable to the New Crane Wharf. He should think the cheque was an open one. He believed he was dealing with the wharf, and he paid fair prices for sweepings. With the exception of that cheque, the prisoner did not receive any money from him. Mr. Lushington remanded the prisoner again in order that the police might communicate with the Public Prosecutor. He would accept the same bail as before, viz. two sureties in 100*l.* each and himself in 200*l.* for his re-appearance.

MR. JAMES PIRIE (not Pine, as printed last week) has taken the business of Mr. W. Garrow, chemist, Keith, N.B.

Provincial Reports.

of news, and newspapers containing matters of interest to the trade, sent to the Editor, will much oblige.

BIRMINGHAM.

VERY old-established business (Messrs. Snape & Son, of Hampton Street) has recently changed hands, the new proprietor being a Mr. Poole, from Sloane Square, London, who is not unacquainted with the locality in which the shop is situated.

COUNCILLOR BARCLAY has written a pamphlet on Birmingham water supply, and it is being well circulated in his ward (St. Thomas's), in view possibly of the approaching municipal elections, which take place in November. Mr. Barclay is to be opposed on political grounds, and it seems reason to expect the opposition will be successful. In that case many pharmacists here hope to get him on the London Pharmaceutical Council. If, however, he keeps his seat here, a higher usefulness is hoped for from him. Birmingham town councillors stand very good chances of being M.P.'s. To have pharmacy represented in Parliament by such an energetic and enthusiastic man would certainly be a benefit to us as a class.

CRICKET.—The return match between the married and single members of the Midland Counties Chemists' Association was played at Small Heath Langley ground, on Wednesday, in beautiful weather. There was a good attendance, including many ladies, who seemed pleased with the result. Play was at 12 30 punctually, and a capital tea was served at a neighbouring farm-house in the course of the afternoon. The result was as under:—

Single	Married
Ground, c Alcock (fielding .. 3	J. Drew, b Ground .. .. 4
.. .. ..	T. Critchlow, b Ground .. .. 0
.. .. ..	C. S. Baynton, b Whitby .. .. 18
.. .. ..	A. E. Robinson, not out .. .. 23
.. .. ..	F. H. Prosser, b Alcock .. .. 2
.. .. ..	W. R. Sellick, b Alcock .. .. 1
.. .. ..	C. Thompson (Capt.), b Whitby .. 2
.. .. ..	F. Barlow, b Alcock .. .. 0
.. .. ..	T. Wakefield, not out .. .. 5
.. .. ..	(Messrs. H. Sparshott and Hollick to bat)
.. .. ..	Extras .. .. .. 15
.. .. ..	Total .. .. .. 75
Total .. .. 41	

ENTER PRESCRIBING.—An inquest was held on Tuesday on the body of Lizzie Doce, 6 years of age. The mother stated that the deceased and four other children had been suffering from whooping-cough for about a month past. She had procured medical aid, but administered cough emulsion, obtained from a chemist named Wilson, in Holloway. On Saturday deceased became worse, and was taken to Dr. Wood's surgery, which is at the chemist's. Dr. Wood saw the child and prescribed, but death occurred the same evening. Mr. O. W. Barratt, surgeon, said that death was due to the closing of the larynx, caused by whooping-cough. Had medical aid been obtained deceased would have had a better chance of living. The death he had been called in to see the other children, one of whom was very ill. The jury returned a verdict of "Natural death," and remarked that the parents, in their opinion, to blame for not obtaining proper medical aid. The deputy-coroner called the mother before and told her that she ought not to have been content with giving the child cough emulsion, but should have obtained proper medical aid. She ought to have known that the chemist was not a properly trained medical man, but that it was his duty simply to hand over the counter those things which were asked for. The mother said that she had been to the chemist every night for a month and purchased the emulsion for twopennyworth of whooping-cough emulsion.

The foreman said the jurymen thought that the chemist was deserving of blame for not advising the mother to procure medical aid when he perceived that her visits were so often repeated. The deputy-coroner said that he quite agreed with the jurymen.

BRADFORD.

ATTEMPTED SUICIDE WITH CARBOLIC ACID.—Late on the night of September 13, Michael Skelley, 26, of Manningham, who had been drinking heavily, mixed carbolic acid with the beer he was drinking with supper, and drank some quantity before his wife could stop him. He had bought an ounce at a shop kept by Mr. Aspinall in Holycroft Road. The bottle was labelled "poison." The man seems to have recovered, and on Tuesday was charged at the Police Court with having attempted suicide, but was discharged with a caution.

DURHAM.

SUDDEN DEATH AT DURHAM.—On Monday Benjamin Gibson, a young man apprenticed with Mr. J. C. Kendle, chemist and druggist, North Road, Durham, died very suddenly. Gibson, who had been ailing for some months past, had occasion to go into the yard adjoining the shop, and was afterwards found there in an unconscious condition. Dr. Boyd was called in, but deceased died shortly after his arrival.

EASTBOURNE.

FOND OF ANTIPYRIN.—At the Police Court on Monday, Elma Susan Large, a barmaid at the Theatre Royal, surrendered to bail on a charge of having, on Friday week, attempted to commit suicide by taking certain poisonous powders. Dr. Carlton Jones, resident surgeon at King's College Hospital, London, gave evidence that each powder contained 5 grains of antipyrin, and was quite harmless. The prisoner had received them from Dr. Stevens, of the King's College Hospital, when she was there, after an operation. Dr. Stevens told her not to take more than three at one time. If the prisoner had taken eight powders, as stated, she would have taken about 40 grains, which would be an unwholesome quantity. The charge was dismissed.

LIVERPOOL.

CRICKET.—EVANS, SONS & Co. v. ROBERT CROOKS & Co.—A match between the clubs connected with these houses was played on Saturday last at Aigburth. For Evans's, F. Beckett (22) and J. Jackson (20) were top scorers, the druggists' innings realising 80. Crooks's eleven were all out for a total of 11, W. P. Evans and F. L. Beckett proving deadly with the ball.

THE HEALTH COMMITTEE AND CARBOLIC ACID.—We announced last week that the Health Committee of the City Council had resolved to memorialise the Privy Council to place carbolic acid under restrictions similar to those which environ the sale of other poisons. The following fuller report of the proceedings of the Health Committee in this matter at their meeting on September 13 is worth placing on record. Mr. J. Barkely Smith was in the chair, and there were also present Messrs. Mattison, Houlding, Cookson, Woodcock, Duncan, jun, and Grindley.

The Town Clerk submitted the following report which he had prepared on the subject of the sale of carbolic acid:—With reference to the request of the Health Committee at their last meeting that the Town-clerk should inquire as to what restrictions, if any, were placed upon the sale of carbolic acid, the Town Clerk begs to report as follows:—1. That by the Pharmacy Act, 1868, adequate provisions are made with respect to the sale of the poisons mentioned in the schedule to the Act. 2. That he finds that carbolic acid is not one of the poisons mentioned in the schedule, and therefore the restrictions contained in the Act do not apply to that article. 3. That there is a provision in the Act which enables the Pharmaceutical Society, by a resolution with the approval of the Privy Council, to add any other poisons to the list of those contained in the schedule. 4. That the Town Clerk



wrote to the Pharmaceutical Society, asking whether carbolic acid had been included in the list of poisons since the passing of the Act, and that by a letter dated the 12th September, 1888, the secretary to the society informed the Town Clerk that the society had in February, 1882, resolved unanimously that carbolic acid should be included in the list of articles to be placed under restrictions, but that the Privy Council did not consider it desirable to add this article to the poison schedule. The Town Clerk appends a copy of his letter to the secretary, and a copy of the secretary's reply :—

Town Clerk's Office, Liverpool, Sept. 7, 1888.

Dear Sir,—Numerous fatal accidents have occurred in this city and neighbourhood through the inadvertent drinking of carbolic acid, and the subject has been brought prominently before the Health Committee of the Corporation, and I have been requested to make inquiries with regard to it. I do not find that carbolic acid is one of the specified poisons mentioned in schedule A of the Pharmacy Act, 1868, and, therefore, unless the article has been defined as a poison by the Pharmaceutical Society pursuant to section 2 of the Act, carbolic acid can be sold without the restrictions contained in the statute. I shall be much obliged if you will kindly inform me whether the society have passed any resolution on the subject. Apologising for troubling you in the matter,

I am, dear sir, yours truly,

(Signed) GEORGE J. ATKINSON, Town Clerk.

Richard Bremridge, Esq., Secretary Pharmaceutical Society, 17 Bloomsbury Square, London.

Pharmaceutical Society of Great Britain,  
17 Bloomsbury Square, London, W.C.,  
September 12th, 1888.

Dear Sir,—In reply to your inquiry of the 7th inst., I beg to inform you that in February, 1882, the council of this society passed a resolution, copy of which is printed on page 653 of the *Pharmaceutical Journal* sent herewith. The resolution was sent to the Privy Council in due course, with the result that their lordships decided to approve the addition of *aur comica* to the poison schedule, but did not consider it advisable to add to the restrictions on the sale of the acids and other articles referred to in the resolution.—I am, dear sir, yours faithfully,

(Signed) RICHARD BREMRIDGE, Secretary.

G. J. Atkinson, Esq., Municipal-buildings,  
Liverpool.

Mr. Woodcock said the chemists of Liverpool very much regretted the fatalities which had recently occurred in Liverpool through the inadvertent drinking of carbolic acid, and although the law did not compel them to label it "poison," they did so in every case, and impressed upon purchasers the necessity of using caution with such a deadly compound. The chemists were, in fact, most anxious to fulfil not only their legal but their moral obligations in the matter. Unfortunately, carbolic acid could be bought anywhere without any restriction, because it was not under the Poisons Act. His own opinion was that it should be included in that Act, and that under no circumstances should the drug be sold to children under fourteen years of age. There was no doubt a mania for the acid in Liverpool, and he might say that a person could not suffer a more fearful death by the taking of any other poison. In drinking carbolic acid they were swallowing liquid fire and endured awful agony.

Mr. Duncan said he had thought that it was not labelled "poison," but on inquiry he found that it was, and that the chemists were very careful in telling purchasers how dangerous it was.

The Chairman: The chemists do all they can, but other parties sell it without let or hindrance.

Eventually a resolution was passed recommending the Privy Council to place carbolic acid under similar restrictions to other poisons, and that the Town Clerk write to the authorities to that effect.

#### REIGATE.

CAUTION TO LIBERAL FIRMS.—On Monday at the Reigate Borough Bench David Clark was summoned for illegal pawning. Prisoner, who was formerly in the employ of Messrs. Spratt, the well known manufacturers of dog biscuits, wrote to that firm under an assumed name, falsely represent-

ing that a dog and poultry club, with himself as secretary, had been formed in Redhill, and soliciting a subscription towards a show. They gave a two-guinea cup, which prisoner pledged. In default of paying a fine of 20s., also the value of the cup, and costs, he was committed for a month.

#### SHEFFIELD.

THE PHARMACEUTICAL CHEMICAL SOCIETY.—The annual general meeting of the Sheffield Pharmaceutical and Chemical Society was held on July 12, Mr. Maxey in the chair. The annual report was read by one of the secretaries, and in it the council claimed that during the past year the Society had proved itself more than ever a living factor in the world of pharmacy. The papers read at the evening meeting had been of more than usual interest; the "students' nights," instituted to secure the greater interest of associates, had been a marked success; and the number of entries in the School of Pharmacy was more numerous than in any previous session. During the year the Society's income, inclusive of a grant of 50% from the Pharmaceutical Society, and of a balance of 20% from the previous year, had amounted to 118' 14s. 7d. With the exception of a balance of 15% this had all been spent. It was pointed out in the report that, owing to the removal to and alteration of new rooms to meet the increasing wants of the school, the expenses had been very exceptional. An animated discussion followed the reading of the report, especially with regard to the financial part of it. The debate was taken part in by Messrs. Preston, Furness, Cubley, Newsholme, Learoyd, Ellinor, and Grierson, and at times threatened to become somewhat warm. Ultimately the report was passed unanimously. The chairman then intimated the result of the voting for council. This election had been, according to the new rules, accomplished by ballot, each member having a voting-paper sent to him, with instructions to fill up and return before or at the annual meeting. Fifty-six voting-papers were sent out and twenty-five returned, with the following result:—Newsholme 24, Grierson 21, Maxey 21, Morrison 19, Bradwall 17, Ellinor 17, Humphrey 15, Ward 15, Rhoden 14, Learoyd 13, Fox 11, Preston 11. Votes of thanks were then passed to donors, lecturers, and retiring council, and the meeting adjourned.

At a meeting of the new council held on Sept. 14 the following were elected office-bearers for the ensuing session:—President, Mr. E. R. Learoyd; vice-presidents, Messrs. Ellinor and Fox; secretary, Mr. C. O. Morrison; treasurer, Mr. Newsholme; librarian, Mr. C. D. Moffat; auditors, Messrs. Cubley and Watson; lecturers, Messrs. Grierson, Humphrey, Rhoden, and Worrall.

#### SOUTHPORT.

SUICIDE BY CARBOLIC ACID.—A married woman named Lucy Bell, wife of the *chef* at one of the hotels in Southport, who had taken to drink during the past two years, had got into debt, and was uncomfortable with her husband, obtained six pennyworth of carbolic acid from Mr. Horsfall, chemist, last week, and was afterwards found dead on the kitchen floor. At the inquest held on September 14, before Mr. Samuel Brighthouse, coroner, the following conversation took place between him and Mr. Horsfall, when the latter had given evidence in regard to the sale of the substance :—

The Coroner: I understand there is no restriction on the sale of this acid?

Witness: No, sir. It is not mentioned in the schedule.

The Coroner: Although you labelled the bottle "Poison," there is no obligation on you to do so?

Witness: No, sir.

The Coroner: Do you think carbolic acid ought to be scheduled?

Witness: I do think so.

The Coroner: You think the advantages would be greater than the disadvantages?

Witness: I do.

After some further evidence the Coroner said no doubt the jury knew as well as himself that these cases of carbolic-acid poisoning were becoming very frequent, and most likely they thought that the Legislature ought to step in and place some restrictions on the sale of the poison. Perhaps, however, they had seen in the morning papers that the Liverpool Town

Council had gone into the matter very exhaustively, and instructed the town clerk to petition the privy council to place this deadly fluid in the list of poisons. That being so, it would, he thought, be superfluous on the part of the jury to make a suggestion in this direction. Had he not seen that the Liverpool City Council had taken the matter up he would undoubtedly have recommended the jury to make a presentment in the matter.

The jury, after a short consultation, returned a verdict to the effect that the deceased committed suicide while in a state of temporary insanity.

## IRELAND.

**PROSECUTIONS UNDER THE PHARMACY ACT.**—We learn on the best authority that it is not the intention of the Council of the Pharmaceutical Society of Ireland to let the Ballybay cases drop.

## SCOTLAND.

### ABERDEEN.

**THE ASPHALTE CURE.**—Some part of the city now being laid with asphalte, many cases of cure of bronchial complaints are reported. A lady who has suffered severely from asthma felt quite relieved when her house was filled with the fumes from the asphalte boilers. Children suffering from whooping-cough get treated at their own door. One mother has been seen handing up her child to the boiler-man to get cured.

**ABERDEEN UNIVERSITY.—CHAIR OF CHEMISTRY.**—The period for receiving applications for this chair, vacant through the retirement of Professor Brazier, expired on Saturday, and, exclusive of any others that may be received, the following is the list:—H. L. Jones, D.Sc., Ph.D., F.I.C., F.C.S., Aberystwyth; Al. Scott, M.A., D.Sc., F.R.S.E., F.C.S., Durham; W. N. Hartley, F.R.S., F.R.S.E., Dublin; Thos. Jamieson, F.I.C., F.C.S., Aberdeen; Dr. John Gibson, Edinburgh; F. R. Japp, M.A., LL.D., Ph.D., F.R.S., South Kensington; Alfred Senior, Ph.D., F.I.C., F.C.S., London; W. J. Nicol, M.A., D.Sc., F.R.S.E., F.I.C., F.C.S., Birmingham; William Mackie, M.A., M.B., C.M., Elgin; Andrew Thomson, M.A., D.Sc., F.R.S.E., F.C.S., F.I.C., Dundee; Orme Masson, M.A., D.Sc., F.R.S.E., F.C.S., Melbourne. A meeting of the University Court will be held on Monday to consider the applications, when it is anticipated a short list will be selected.

### CUPAR FIFE.

**CARBOLIC-ACID POISONING.**—On Sunday morning last Mr. W. Paul, who has been town officer in Cupar for many years, committed suicide by taking a cupful of crude carbolic acid. He informed a neighbour that he had done so, and did not long to live. Drs. Macdonald and Douglas, and Mr. Jamieson, chemist, were immediately in attendance, and did all in their power to counteract the poison, but without effect. He died in less than an hour after taking the poison. The deceased was upwards of 50 years of age, and was highly respected. It is supposed that the rash act was caused by bad health. About a year ago the deceased underwent an operation for fistula in the Royal Infirmary, Edinburgh, and both before and since was a martyr to great physical pain.

### DUNDEE.

The practice of the late Dr. James Hodge, chemist and druggist, has been purchased by Dr. Kinnear, of Broughty Ferry.

"THE DUNDEE DRUG STORE" is with us at last. This is the name which Mr. James Anderson has given to his new pharmacy in Commercial Street, which was opened last Saturday. The shop is handsomely fitted, and the American dress labelled bottles give it a bright appearance. Mr. Anderson announces "Patent medicines and all druggists' sundries at wholesale prices." There is no mention of drugs and prescriptions.

ANOTHER pharmacy will, we learn, be shortly added to the number in the centre of the town. Mr. David Mackay, of Burrygate and Scouringburn, has just acquired on lease a corner shop at the junction of Seagate and Commercial

Street, leading to the docks. The position is a good one, as it is well exposed to the High Street, and there is much traffic past it.

MR. PATRICK GEDDES, F.R.S.E., of Edinburgh, who is well known in pharmaceutical circles there, and to local scientists here, was last week elected to the J. F. White chair of botany in the University College. It is curious that Professor Geddes's name appeared in the calendar of the college as professor some days before he received the appointment; and it is a further interesting fact that the professor acquired the rudiments of science at local evening classes, afterwards finishing off at the South Kensington School. Mr. Geddes is one of the "advanced" school of botanists, and has pronounced views on social questions.

## EDINBURGH.

**COMPLIMENTARY DINNER TO MR. THOMAS FAIRGRIEVE.**—Mr. Thomas Fairgrieve, pharmaceutical chemist, 46 Clerk Street, was entertained to dinner in the Waterloo Hotel on the evening of Monday, September 17, by a number of his medical, pharmaceutical, and other friends on the occasion of his retiring from business. About thirty gentlemen sat down to dinner. Mr. James R. Young occupied the chair, and Mr. Richard Clark officiated as croupier. The company was largely composed of medical men, there being present Drs. Stewart, Thomson Lowne, A. Moir, Zeigler, T. A. G. Balfour, Jamieson, Bairstow, &c.; pharmacists were not so numerously represented, many apologies for inability to be present on account of the holiday season being read. The chairman, in proposing the toast of the evening, mentioned that Mr. Fairgrieve was a native of the city, educated in Edinburgh, and had during his long career never been in any shop but the one in which he first made his acquaintance with drugs. The shop at first belonged to the late Mr. Laurie, a relative of Mr. Fairgrieve, and under him their guest had been trained. At that time the shop was the farthest out on the side. Nearer the city on the main thoroughfare shops were numerous. There were Duncan, Flockhart & Co., John Macfarlan, Scott & Orr, "Nosey" Moffat, and three or four others. The Grange district was then entirely green fields. He (the chairman) first became acquainted with Mr. Fairgrieve in regard to long hours. The hours at that time were usually from 8 or 9 in the morning till 11 at night, and Mr. Fairgrieve and himself began an agitation with the object of getting the masters to consent to reduce the hours of labour. Mr. Young added many pleasant reminiscences of the past, and concluded by saying that Mr. Fairgrieve had devoted some of his not too-plentiful leisure to the cultivation of medicinal herbs, and his name was associated with lactucarium. Perhaps now that he had more leisure they might hear of him making a more extended use of the experience he had already gained in plant cultivation. He was sure they all wished their guest a long spell of life yet to devote to this or kindred pursuits. Mr. Fairgrieve, in replying, thanked the chairman and company most sincerely for the way in which his health had been proposed and received. He also told of the past. He went to the business in the year after the outbreak of cholera. The air was then full of reports of the doings of Burke and Hare. There were at that period few purely dispensing businesses in the city. Most shops were owned by doctors. The three principally-used drugs then were opium, antimony, and mercury. Blistering, blood-letting, and purging were the chief methods of treating diseases. His name went up over the shop in 1840, and since then he had till within the last few days continued in business. He had not expected that on his retirement he would be the recipient of so much honour as was being shown him that evening. He would warmly treasure the recollection of the occasion. Other toasts followed, and with songs, recitations, and speeches the evening passed most pleasantly.

## GLASGOW.

**BEQUEST TO GLASGOW ROYAL INFIRMARY.**—A Creole lady, named Mrs. Margaret M'Ara, who died at Georgetown, British Guiana last August, has left the residue of her estate, amounting to no less than 18,000*l.*, to the Glasgow Royal Infirmary. She was the widow of James M'Ara, a native of Greenock, who had been in business in Glasgow, and afterwards was a druggist in British Guiana.



## FRENCH PHARMACEUTICAL NEWS.

CHEVREUL, at the Academy of Sciences meeting of September 17, was replaced in the financial committee by Admiral Mouchez. It is rumoured the old chemist has become childish, and his health causes anxiety.

LADY PHARMACIST.—From the reports of the Gironde Council of Hygiene it appears that for the first time a woman has been authorised to keep a pharmacy in the department of La Gironde (Bordeaux district).

Mlle. FLORE LE THUILIER, who last Friday died at her residence in Paris, at the age of 100 years and 4 months, was a hotanist of some eminence. She had long since retired from active life, but her interesting herbaria were often consulted with profit by botanists of our day.

CENTENARIANS IN FRANCE.—After a weeding out of doubtful cases, young fellows scarcely above 95 prove to be really 83 in number, 52 of whom are women. The ages of 113 and 114 were claimed respectively by two of them; but as the first, a woman, and the second, a Spaniard, could show no exact documents, 105 may be set down as the extreme limit of life in France. As to the social status, beggars, 22 in number, form the majority, only one, Chevreul, being really wealthy, a fact suggesting the query whether mendicancy promotes old age or old age mendicancy.

HYGIENE IN ITALY.—On October 6, in the Archigymnasium at Bologna, a congress of Italian hygienists will be held, and members of foreign societies are invited to attend. October 6 and 7 are to be devoted to the discussion of the following questions:—Prophylaxis of syphilis; the rag trade and hygiene; the artificial colouration of food. Casual communications are to be next received and discussed, and the hygiene of buildings and building materials will be considered on October 9, the closing day of the session.

MEDICATED BISCUITS.—This form of medication is often used on the Continent, especially for children, and the usual way is to give to a pastry-baker the medicines in the shape of powder, to be mixed with the biscuit paste and divided into a given number of cakes. As an accurate division is thus seldom secured, M. A. Xanthopoulos, of Makri-Keni (Turkey), has proposed the following process to be executed by the pharmacist himself. Take the medicine prescribed, mix it with four times its weight of powdered sugar, and divide into the requisite number of doses. Now with a brush spread each powder on the spongy side of a well-baked biscuit, and finally apply over it a coat of thin mucilage. After drying in a warm place the cakes may be dispensed. To give a better finish a little powdered starch and sugar may be dusted over the medicated side before the mucilage is quite dry. M. Xanthopoulos recommends the process as a quick and convenient one, affording all the accuracy necessary in the exhibition of medicines.

NEW PROCESS FOR SOLUBLE FERRIC OXIDE.—Dr. L. Pesci, of the Livorno Naval Academy, having observed that when a solution of ferric chloride is mixed with one of potassium nitrite nitrogen binoxide is evolved, and a soluble ferric oxide formed, has proposed the following mode of preparation. Into a flask provided with a stoppered funnel and two glass tubes, one of which reaches to the bottom, a solution is introduced of potassium nitrite obtained from silver nitrite and potassium chloride. The air in the flask having been driven out by means of a stream of carbonic acid, a solution of ferric chloride is introduced through the funnel, in the proportion of one molecule for eight molecules of nitrite. Much gas is at once evolved; a washing through caustic potassa to absorb the carbonic anhydride shows it to consist of pure nitrogen binoxide. The flask contains ferric hydrated oxide suspended in a colourless liquid from which it may be separated by filtering. The filtrate proves to hold among other products some nitrous acid, resulting from the excess of potassium nitrite purposely employed. But this feature of the operation-theory need not be further entered into. The ferric oxide left on the filter is now purified by washing with distilled water, either on the filter itself or in a dialyser. When completely freed from all traces of saline impurities it becomes soluble in water, and

presents the following properties. After boiling with pure caustic soda it proves to contain no chlorine, and no nitric or nitrous acids. Its solutions afford no precipitate with either potassium ferrocyanide or sulphocyanide; with tannin a brown coloration followed by a slight precipitate is observed. The addition of an alkali, or a trace of sulphuric acid, of a sulphate or any alkaline salt causes the hydrate to coagulate. With acetic acid no precipitate is formed, but the liquor turns brown-red, and on adding an alkaline salt—sodium chloride for example—the ferric hydrate is thrown down again with all its characteristics. Concentrated nitric or muriatic acid causes a temporary precipitate which soon redissolves and presents the usual reactions of ferric salts. On boiling the ferric hydrate solution becomes turbid, and lets down brown-red flakes which redissolve on cooling. The solution when tested with naphtho-phenol or rosolic acid, has an acid reaction. It seems to keep unaltered for a long time. Taken altogether the properties of the ferric oxide obtained by the foregoing process appear to prove the compound to be a *meta-ferric hydrate*. Indeed all the characteristics described above exactly correspond to those indicated for the compound in question by MM. Pean de Saint-Gilles, Scheurer-Kestner, and Debray at various times. A slight modification of the process would probably afford a practical method for preparing “dialysed iron” without dialysis.

THE TUNIS PHARMACY LAW.—Somehow the pharmacists in the Tunis protectorate are in better luck than their French brethren, a Beylical decree having regulated the practice of their profession in a clear and simple manner which would be much appreciated on this side of the Mediterranean. The official document being very lengthy, its provisions are here set forth as briefly as possible. They are as follows:—(1) After July 16 none shall be allowed to practise pharmacy in the Regency unless he hold a diploma therefor in his own country. (2) All wishing to practise shall present their titles to a Government Commission to be hereafter appointed. [The names of the Commissioners were published in THE CHEMIST AND DRUGGIST of August 25, p. 233.] (3) Pharmacists recognised as such by the Commission may practise anywhere within the Regency. (4) Their names shall be published at the beginning of each year in the *Journal Officiel Tunisien*. (5) In localities unprovided with pharmacists other persons may be permitted to temporarily sell medicines, but (6) they shall only dispense simple medicaments, a list of which will be published. (7) A pharmacist shall keep but one *officine*, shall reside there, and do no other business beyond dealing in drugs. (8) In case of death the pharmacist's widow may keep the establishment open for one year, with the help of an approved assistant. (9) None shall practice both medicine and pharmacy, even should he hold both diplomas, except in places devoid of either doctor or pharmacist. (10) Understandings or associations between physicians and pharmacists shall be unlawful. (11) Pharmacists may sell freely all simple remedies and well-known specialities. Articles 12 and 13 relate to penalties for unlawful practice, and (14) provides that hospitals may have a pharmacy, on condition it be superintended by a regular pharmacist. For the present, however, the following exceptions shall be tolerated: (15) Persons in practice for the last five years, natives holding a Beylical (*amra*), and natives in places or tribes unprovided with a pharmacist may be allowed to practise, but (16) shall make proper application. And finally (17) branch pharmacies actually existing may continue, but they shall be under the care of a competent assistant who shall be jointly and personally responsible for the proper keeping of the establishment.

SAFFRON CULTIVATION.—M. Paul Chappellier, of the French Société d'Acclimatation, at a recent meeting proposed to introduce into France the *Crocus Haussknechtii*, a variety discovered by Professor Haussknecht in Western Persia, between Kirmanchah and Harnadan, at 5,000 feet altitude in the Delechani Mountains. It may here be explained that saffron is a regular crop in some parts of France, the sort grown in the Gâtinais (Fontainebleau district) being most esteemed, and fetching higher prices than Spanish saffron. The trouble is, however, that the French plant yields a rather spare crop, insufficient even for home consumption. M. Chappellier argues that as all the vineyards in the Gâtinais have been destroyed by the phylloxera, and all the remedies elsewhere successful against the disease have failed there,



good idea were to introduce the Persian saffron, which, being very prolific and hardy, would no doubt be remunerative and afford work all around the district. Steps are to be taken to put the plan into execution. The pharmaceutical profession will no doubt be glad of an increased production of saffron, for it always has its uses and partisans, although its prices necessarily limit the demand.

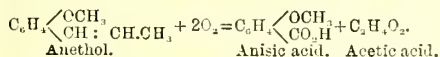
**THE PRESERVATION OF RAILWAY IRON FROM RUST**, when in actual use, has been variously attributed to trepidation, electricity, dropping grease, and other causes. But M. W. Spang, of the Belgian Academy of Sciences, and of the Paris Chemical Society, is of opinion that the phenomenon is solely due to a chemical cause, namely, the formation of a black oxide resulting from the combination of the yellow oxide with the metallic iron under the pressure of passing trains. He demonstrated in his laboratory that on pressing metallic iron slightly moistened ferric oxide on adhering to it a black magnetic oxide is obtained. The pressure applied, 1,000 to 1,200 atmospheres, scarcely exceeds that which might be borne by each 50-ton locomotive wheel. And finally, on scraping off with a brass-wire brush the black oxide formed on the rails where the wheels bear, they proved to consist of magnetic oxide, with a very small proportion of metallic iron. Hence it will be understood why unused rails recovered with rust, while an occasional train is sufficient to keep them clean and bright, magnetic oxide being one of the best protecting agents known for iron surfaces. M. W. Spang's explanation appears very reasonable, so far as it goes, but it does not exclude the other causes mentioned, especially the influence of oils and grease permeating all railway machinery.

**PHARMACISTS AND BAKERS.**—The Paris correspondent of the *Daily News*, writing on Tuesday, says: We did not expect to see the assistants of the pharmaceutical chemists meddle in the bakers' strike. They have, however, come forward, possibly with an eye to future municipal or even legislative elections, as friends of the working class, to vote the following resolutions:—"Seeing that a ring of tradesmen threatens to deceive the public, the pharmaceutical assistants call upon the various councils of France to erect flour mills and bakeries in their several townships, and to guarantee the sale of bread at a just price. It is resolved, moreover, to call on the Floquet Ministry to suspend the duty upon foreign corn, and to requisition the stores accumulated by rings who want for speculative purposes to create artificial scarcity."

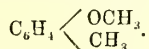
## GERMAN PHARMACEUTICAL NEWS.

(From our Berlin Correspondent.)

**ANISIC ACID** is not a new substance in the field of chemistry, but has not hitherto been used in medicine. Now, however, it is about to be introduced into therapeutics for use in diseases similar to those for which sodic salicylate has been employed. It may be prepared in at least two ways: first, by the oxidation of anise oil or anethol with nitric acid or chromic acid. The reaction is represented as follows:—



Also it is produced by the oxidation of para-cresolmethylether



It crystallises from hot water in needles, and from alcohol in rhombic prisms, melting at 185° C, boiling at 280° C, and subliming undecomposed. Its salts are readily crystallisable and very soluble. The acid will be introduced into commerce chiefly as the sodium and phenol compounds represented as follows:—



The latter melts at 75° or 76° C. Therapeutically it will, as already indicated, be introduced as an antirheumatic, antineuralgic, &c. Curci recommends it to be given in the same dose as sodium salicylate. It is said to be well tolerated, to

be equal in medicinal virtue to the salicylate mentioned, but destitute of the sometimes unpleasant effects of the latter.

**CREOLIN** (which is, being interpreted, "Jeye's disinfectant") is just now posturing in rather an aggressive attitude, because some other manufacturers are endeavouring to force down the fancy price at which the article is quoted, and are offering their own similar preparations as cheaper and equally efficacious. There is consequently a good deal of more or less acrimonious public correspondence between the rival makers, and A. Artmann, one of the chief of these, claiming that his manufacture is equal in power to that of the German firm which runs creolin, counsels the public, in terms scarcely removed from the impolite, to cease the use of the Jeye's article. What is not least interesting is that Artmann calls his compound by the same name as the latter firm, and that the trade-mark also bears a striking resemblance in size, lettering, and design to that of the original creolin. Artmann also states that he will not suppose the proprietors of the "original creolin" believe the high authorities who have experimented with the article have done so merely to please them, and not to make trial of a preparation which is precisely similar to his own.

**SUPPOSITORIES.**—Following the recommendation of glycerine enemata were the hollow cacao suppositories of Boas, containing the agent, about which you will remember I told you not very long since. Another suggestion, which has at least the merit of being in some way simpler, is to use the glycerine suppositories first recommended by Dieterich, which have been successfully tried by the medical profession. They are prepared by dissolving 10 parts of hard dialysed stearine soap in hot water, adding 90 parts of pure glycerine, filtering through a warm water funnel, and evaporating the filtrate down to 100 parts, and moulding into the usual suppository form. They are made in sizes varying from 25 to 50 grains each, containing, of course, 90 per cent. of glycerine.

**SUCCINIMIDE OF MERCURY.**—This new mercurial has the formula  $\text{C}_2\text{H}_4 \begin{array}{c} \text{CO} \\ | \\ \text{CO} \end{array} \text{NH}$ , and may be formed by heating together succinic acid, anhydride, and ammonia. It furnishes with mercuric oxide a compound which occurs as a white silky powder, very soluble in water. This solution remains quite unchanged when kept. Dr. Vollert publishes some account of the agent in the *Therap. Monatsh.* He prepared a solution of 1·3 grammes of the mercuric salt in 100 of water, and used it in a large number of cases in the form of a hypodermic injection. He found that its action was satisfactory, free from pain and from undesirable secondary symptoms. Over some similar compounds it exhibits the advantages of giving a permanent solution which may be kept without decomposition for weeks. Moreover it is cheap; it contains about half its weight of mercury in the combined condition.

## DEATH.

**THOMPSON.**—On September 11, at High Street, Sutton Coldfield, John Shelton Thompson, chemist and druggist. Aged 43.

## MARRIAGES.

[Notices of Marriages and Deaths are inserted free if sent with proper authentication.]

**ADAMS—EATON.**—On September 11, at Smethwick Old Church, William Adams, chemist and druggist, 191 Dudley Road, Birmingham, to Henrietta Eaton, eldest daughter of Robert Eaton, Shireland Road, Smethwick.

**BECK—ATKINS.**—On September 12, at Central Wesleyan Chapel, Hastings, by the Rev. J. McKenny, Albert N. Beck, chemist, to Annie, only daughter of Mr. W. H. Atkins, Wykeham Terrace, Hastings.

**WOOTTON—PIGOTT.**—On September 17, 1888, at St. Andrew's, Holborn, by the Rev. T. Astley Maberley, Peter Wootton, chemist, Luton, to Emma, younger daughter of Francis Pigott, farmer, Stopsley, near Luton. (Golden wedding.)



## POST-CARD COMPETITION.—No. 8.

WE continue our selection from the post-card papers on "Conference" subjects:—

## STOCK-TAKING.

The importance of this yearly custom in a business cannot be over-estimated. In these times of cutting prices it is absolutely necessary to take stock annually, otherwise it is impossible to estimate the profit and loss on the year's transactions, as the profit on patents is so much reduced.

It seems very true that chemists as a rule are not business men: not one in ten can tell his true position with accuracy at the end of the year. What is the cause of this? Laziness, alas! in many cases; in others, the professional element is too strong. The stock should be taken at the end of the year. This is undoubtedly the best time, as all the great warehouses and merchants take theirs then. It must be done thoroughly, and not left entirely in the hands of those who have no interest in the firm. It is astonishing the number of odds and ends which will be turned out, some to be thrown away to make room, and some to be sold at a reduction; in fact, it ought to be done regularly, even if it were merely to unearth rubbish and purify the pharmacy. A chemist would not get such an accumulation of old and useless stock if this process were carried out at regular intervals. Old patents can be exchanged, spoilt drugs thrown away, and so on.

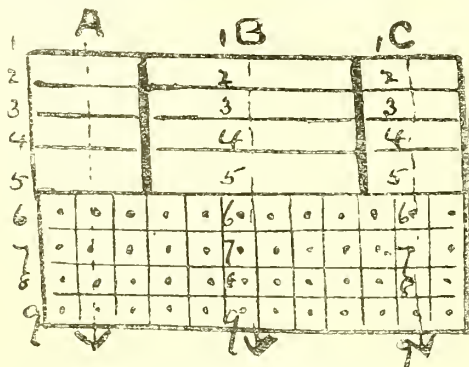
About the beginning of December the clearing up should commence, every bottle in the shop washed, the shelves cleaned, and everything put in such order that you could see anything at a glance. This will doubtless take two or three weeks, but the bright appearance of the shop and fixtures will quite repay the chemist for the trouble. Now a book must be purchased and everything in stock entered therein, leaving the number and quantity until December 31, when that part of the business must be done. In some cases it is impossible to take stock in one day, but this can be remedied. Supposing a week is taken, the invoices can be added to the stock and the takings and bookings subtracted. An immense amount of trouble will be saved if every bottle and drawer in the shop is tared.

J. R. T.

## THE ARRANGEMENT OF STOCK.

Subject No. 94 was "Describe a system of arranging stock so that a new assistant can find things easily." To this we had a prolific response, and select the following variety of papers:—

Let each convenient division throughout the whole run of fittings in the shop be known by a letter, and each shelf (treating rows of drawers as shelves) by a number. Any exception from the ordinary fixtures should have two letters, as P C, poison cupboard; O C, odd cupboard, &c. Get an Elliott's price-book, published by Silverlock, and opposite the article named in list, indicate its position on the shelves or in the drawers by the letter and number, thus:—A 1, B 5, C 8, or P C 1, and so on. This system can be extended to the



general stock by numbering the shelves in warehouse or stock-room, using the letters S T to signify stock, and adding it on to the original number, e.g. if the formula B 4 S T 8 was found opposite an article, a new assistant would know—(1)

that that substance was kept in stock; (2) its position in the shop, and (3) that a larger stock was to be found on shelf No. 8 in the warehouse. This system works admirably for tinctures, drugs, chemicals, &c., but it is better to keep a separate index for patent medicines and sundries, which, however, can be very similarly arranged.

C. B. A. (not for competition).

Heavy goods in large quantity on floor. Bulky goods there, or on top shelves, or suspended on rods across ceiling. Wet goods on lower shelves, or by themselves, where an accidental spill will not damage parcels. Pictures alphabetically, side by side. Liquors ditto, &c. Ethers, spirits, and the like in the coolest and least obtrusive place. Acids together. Iron preparations (d.) ditto. Dry goods similarly, bottles above, parcels below, but iron over iron, sodas over sodas, &c. Alphabetical arrangements throughout. Gums, gum-resins, foliae, flores, cortices, ligna, radices, semina, pulveres, vegetables in paper if you wish to preserve them. Corks, chip, pill, seidlitz, camphor ball, post, &c., boxes up aloft. Shop bottles for liquids of blue glass. I have not lost an ounce of tincture in sixteen years, except vin. ipec., which I once unluckily bought, instead of making, and have not had comfort since. A stranger's "gumption" tells him whether to look for a large or small bottle of tincture, and all, I say again, are A B C. Dirty bottles, like tr. ferri, liq. ferri, go into locker with all other Fe preparations. Essent. oils in another locker. Syrupi ditto. Chloroform, ether, &c., in a fourth; and here I place chlorodyne on principle of association of ideas (which please make a note of). Acids take a share in one locker; but the dilute acids are kept separately. The liquors and conc. infusions have one to themselves, and I find it best, on the whole, to sell and use from stock bottles. Any brother using opal glass tincture bottles would oblige with his opinion on their non-actinic qualities; blue show even a little dust, and every finger-mark tells. My powder bottles are clear glass, and I am sorry to say that salts and vegetables are mixed, though this has the advantage of colour, and of locality. Of this word make a note, "The eye remembers more than the ear." How often do we take up and put down bottles, unconscious of having read the label? How often in cold perspiration examined the lip of a tr. bottle for moisture? How glad to find it there, saved by locality! And is not form also useful? I have hideous bottles containing solutions which I would not exchange for thrice as good ones. Nor would my craze for uniformity lead me to accept a series of uniformly labelled "poison" bottles for my "dispensing screen." They are demons, of whom I am at once servant and master. Their caves are sacred to my duster alone, I alone admire their monstrosities, for I presided over their appointments, ages ago settled their regalia, long years have we been faithful each to the other. But it is as easy to replace them as to put away any other bottle, though they will not settle in any chance gap in a row of tinctures or simple liquors. Some names are designedly archaic, others my own pet dog Latin, to avoid too great twinning, e.g., cret. camph., gallic, precip, preparat., all much of a muchness when one is anxious to be off.

D. O. EVANS.

The cellar or room in which the stock is kept should be in the first instance well lighted. Furnish the walls with shelves from top to bottom at distances varying between 10 and 15 inches. Place all tincture bottles on a shelf or series of shelves arranged alphabetically, and place on the top shelf of the series or on the single shelf the word "Tinctures," written in large characters so as to be distinguishable. On separate shelves or series of shelves, in the same way as for the tinctures, place all infusions (if kept in stock concentrated), essences, liquors, extracts (solid and liquid), essential oils, oils, &c. Always arrange alphabetically, and the name of the series of substances plainly written, as for the tinctures. Acids, strong and diluted, ought to be placed in such a manner as not to destroy or damage goods in the vicinity. The lower shelves ought to be kept for pots containing ointments and oils, such as palm oil, &c. Supposing the room being square, and three of the walls being occupied by the above-mentioned goods, have the fourth wall fitted with a nest of drawers (7-inch size), elevated 1 or 2 feet from the ground, and the top touching the ceiling. Roots, flowers, seeds, leaves of plants, barks, &c., well arranged and



systematically disposed in the drawers. The bottom part divided in bins to receive bottles and jars for the use of the shop. Part of the wall to be kept for shelves to receive boxes, papers, counter-bills, corks, &c., and all sundries of inferior character. As to the centre of the room, it should be kept for the purpose of storing casks, mineral-water boxes, carboys, &c. A table, in the drawer of which stock-book, pen, ink, string, cork-screw, scissors, &c., should stand in the middle for the convenience of everybody.

MARIUS GAZIELLO, 149, Houndsditch, E.

Most things in a shop could readily be found by the following method:—

(1) Divide shop in A, B, C, D, &c., divisions. (2) Number shelves 1, 2, 3, 4, &c. (3) Number large drawers ditto. (4) Divide nests of drawers, continuing alphabetical arrangement, and include cupboards in succession to same. (5) Take drug and patent price-lists (one of each) and insert numbers of divisions and shelves opposite names of articles (retail prices could also be inserted when retail drug-list is not used for the purpose) thus:—

A 1 | Cret. præp. | 1*l.* oz.

would mean A division, 1st shelf.

D 1 | Holloway's Pills | 1*s.* 1½*d.*, 2*s.* 9*d.*, 4*s.* 6*d.*

would mean in drawer No. 1.

W 1 | Rossetter's Hair Restorer | 3*s.* 6*d.*

would mean in window No. 1.

M 4 | Sarsæ rad. | 4*l.* oz.

would mean in M division nest of drawers, 4th drawer from top or bottom.

To get more readily acquainted, an "index" would be necessary, which could be inserted in beginning or end of drug-list. Examples:—

A—Division containing "blue" syrups.  
B—Half of centre division.  
C—Second half of centre division.  
D—Division containing essential oils.  
E—Centre division behind glass case.  
F—End "  
G—Jars and bottles under above division.  
H—Nest of drawers under syrups.  
I— " " opposite door.  
K—Cupboards under "  
L— " " at back of glass case.  
M— " " under window No. 1.  
N— " " " No. 2.  
O— " " " No. 3.  
P—Drawers under counter, 1st division.  
Q— " " " 2nd "  
R— " " " 3rd "

And so on, the above being, of course, imaginary, and would have to be altered to suit construction of shop.

It might be advisable to keep articles and preparations having a similarity together as nearly as possible; also to attach a list of contents to large drawers containing sundries, &c., and also to cupboards; and for articles not enumerated in either price-list space could no doubt be found for the insertion of their names in those lists, alphabetically, as they occur. For articles not classified in divisions, remarks against their names, such as "On counter," "On show case," "In glass case," &c., would ensure their being speedily found.

A. CRAIGHEAD, 344 Mare Street, Hackney, E.

#### LABORATORY FOR CHEMISTS.

As far as possible a room should be used for the laboratory only. It should have plenty of shelving round the walls, with a strong wooden bench below, and a table in the centre of the room. A good sink and supply of water. Plenty of light and ventilation, and if possible a fume-cupboard. Gas should be arranged so as to give a good light when required, and with special taps for rubber tubing for attaching Bunsen and other gas-burners. The following apparatus should be conveniently arranged on the shelving, the benches and table being left quite clear for manufacturing upon.

One gallon Y. G. Co. percolator; 25-oz. and 66-oz. Toogood's

percolators; 1-gallon Lynch's double-action tincture-press; 12-pint iron saucepan; 2-gallon enamelled iron pan, with lip, ring-handle, and small handle behind for tilting up; iron frying-pan or common iron dish for sand-bath; strong tobacco-cutter for cutting roots; "Enterprise" drug-mill; Bracher's mixer, with drawer and three sieves, numbers 20, 40, and 60; hair sieve; 1½-pint and 1-gallon tinned iron mortars; 1, 3, and 10 pint Wedgewood mortars and pestles; ½ and 1 gallon common brown jugs (earthenware); set of three good small jugs; one each 3 and 5 grain pill-machines, with marble slabs, to cut 30 pills each; Symes's "Simple" pill-coater; boxwood pill-silverer; 2 reversible pill-finishers; graduated pill-tile; 5-pint, 12-inch diameter, enamelled iron evaporating-dish, with lip and handles; 1-gallon stoneware or composition evaporating-dish; 2-pint Berlin porcelain evaporating-dish; 1 dozen glass-ribbed 20-oz. funnels; 1-pint and two 1-quart white fluted stoneware funnels; 2-gallon copper still, with pure tin condensing-worm and galvanised iron tub; 2-oz., 4-oz., 8-oz., 20-oz., and 40-oz. stoppered retorts; Liebig's condenser, 36-inch glass tube and tin outer tube; pint verified glass measures; 1-quart tin measure; Bunsen burner with rose-top and ¾-inch tube; one each Fletcher's low and high temperature gas-burners, latter with a blast-pipe; quart infusion-pot; plaster-spatula; 1 dozen glass stirring rods; one each quart and gallon felt filtering-bags; tin water-bath, with 6-pint earthenware dish and brass tap; nitrometer and good stand; hydrometer marked 700 to 1000; Beaume's hydrometer for heavy liquids; a dialyser, and flannel and calico filtering-bags may, like many other small things which would be found useful, either be made or bought at home. The foregoing are the principal tools required by a chemist and druggist to manufacture his own pharmaceutical preparations, &c. They would, no doubt, however, require modifying by each pharmacist to suit the requirements of his especial trade. Though not required for manufacturing, the following should also find a place:—Three dozen 4-oz. stoppered bottles (for test reagents); three dozen test-tubes, 6 inches by ¾ inch; one 2-dozen test-tube stand; test-tube holders; 1½-oz., 4-oz., 6-oz., 8-oz., 12-oz. beakers; flasks same sizes as beakers; good iron retort-stand; separating funnel; triangular and circular tripods; triangles; sp. gr. bottle, with weight and case; set cork-borers; triangular and rat-tail files; 2 lbs. glass tubing; Mohr's burette, with stopper and Erdmann's float; 500-c.c. flask; 500-c.c. graduated jar; one each 1, 2, 5, and 20 c.c. pipettes; one each 2-oz., 3-oz., 6-oz., and 10-oz. Berlin porcelain evaporating-dishes; thermometer, graduated to about 600° F. and 316° C.; set of gramme weights; analytical balance; wash-bottles, and H<sub>2</sub>S, and Marsh's apparatus.

ANTIPIRYIN.

#### SAFEST MODE OF STOCKING POISONS TO GUARD AGAINST ACCIDENTS.

In most of the London shops it is not difficult to find some of the scheduled poisons placed on the shelves with other drugs in the ordinary way. I consider this a footpath to accidents. I believe the following way of stocking poisons would do away with a good deal of risk attached to the dispensing of poisonous preparations. I suggest that a small glass cupboard with a lock attached should be placed in a portion of the shop where good light is obtainable. All alkaloids and strong poisons should be kept here in stoppered bottles plainly labelled and provided for the purpose. All poisonous tinctures, solutions, &c., should be kept in bottles of a distinguishable colour, and kept quite separately from the other tinctures, &c., and in alphabetical order. Poisonous extracts should be kept in pots of a different colour to the ordinary pots, and kept together in a place set aside for such extracts.

D. H. D.

#### PHARMACY AND STORES.

In the first place, let us recognise that stores exist, not as an evil which should be stamped out by legislation, but as one of the natural products of the age. This will clear the ground and save much useless discussion on how to abolish them, &c. We might just as well think of legislating co-operation away. The question is, then, what to do with them? First, although a little paradoxical, let me illustrate from my experience what it should not be. A customer asks for a cake of Pears' Soap; it is produced, and he demands the price. 4*d.* or 6*d.* is asked, and he at once says he can get it for 3½*d.* at the stores. The chemist then treats the



customer to a lengthy disquisition on the iniquity of the stores' way of trading, and on the smallness of the profit derived from the sale of the article, and so makes the customer feel very much like a man who is trying to take a mean advantage over him. He finally either lets him have the soap at store price, or sends him away without it at all. What sense is there in that?

Now as to what he should do. I would advocate that he should not be behind the stores at all in whatever is included in mere articles of retail, such as patents, &c. He should lower his price at once, so as not to allow the stores to take away a customer. For it is easier to retain a customer than to get one back. He may grumble about reductions, &c., to himself, but let him reflect. It is a natural consequence that the less costly a thing is the more of it is sold. Now, is it not better policy to keep six customers at  $\frac{1}{2}d.$  profit each than to have one at 3*l.* and let the other five go elsewhere, especially when those five might buy other things besides the patent? What right have we to legislation when the butcher, baker, and tailor are as hardly pressed as we, aye, and by ourselves? For the same chemist who talks about the iniquity of the stores will go to the cheapest baker. And if he can get at one place a coat for 40*s.* which he would have to give 50*s.* for at another (material being equal), he would certainly not go to the latter. Thus for things which merely pass through his hands, as they would as well through anyone else's. But as for dispensing, &c., he has a clear ground. Nothing but the best should be used, and a reasonable charge asked. No getting in of second qualities, and so competing. That is lying, and he could not blame the stores at all. But if he adopts the former plan he can honestly say that he has met the tendency of the times to the best of his ability, and has attended to the public wants and demands in a way satisfactory to any reasonable man. And the public will not be behindhand in their appreciation, and so there will be kept up that harmony of feeling and mutual dependence which is the true foundation of a "good business."

H. R.

#### ESSENCE OF RENNET.

The finest method of preparation is as follows. It keeps indefinitely, and the strength is about 1 oz. of rennet to 1 gall. of essence—

Take 24 lbs. of dried rennet, cut small, freed from salt, and sifted—No. 4 sieve. To dry the rennets take them and sprinkle well on both sides with salt, lay them singly on trays in a drying room heated to about 126° F., and they will be ready in a week. And also take

Salt .. .. .	12 lbs.
Rectified spirit .. .. .	4 gall. 32 fl. oz.
Sherry .. .. .	1 " "
Aqua .. .. .	18 gall.

Macerate seven days, shaking, drain on a fine sieve and filter; then filter again through fuller's earth to brighten it. One teaspoonful to 1 pint of lukewarm milk will curdle in a few minutes.

#### ALOES.

##### THE PREPARATION OF TINCTURES.

There are about forty tinctures in the Pharmacopœia of 1885 directed to be made with proof spirit. This spirit contains water and rectified spirit of wine, in the proportion of 5 of the latter to 3 of the former. Will these proportions answer equally well for the whole forty, or could not some of them be as efficaciously prepared by means of a menstruum containing water and spirit in equal proportions? For experiment I selected tr. cinchona, tr. hyoscyami, tr. krameria, and tr. opii. The following is the method employed in the preparation of the first three:—

Digest drug for one hour in 4 oz. of water, at a temperature of 160° F. Let it macerate for three days; then add 4 oz. S.V.R. Continue maceration for four more days. Transfer to a percolator. When the fluid ceases to pass, continue percolation with remaining ounce of S.V.R. and ounce of water, mixed. Afterwards subject the contents of percolator to pressure, filter the product, mix the liquids, and make up to 10 oz.

The opium was digested in 5 oz. of water, at a temperature of 160° F., for one hour; macerated for three days 5 oz. of S.V.R. added, and at the end of the seventh day made up to 10 oz. The temperature after the first hour varied from 60° to 70° F.

The tinctures when finished, in taste, colour, and smell,

were equal to those prepared strictly according to the B.P., and in each case contained as much soluble matter.

The latter I proved by weighing 1 fluid oz. of each menstruum, and deducting this from the weight of 1 fluid oz. of the respective tinctures.

I found that tincture of cinchona, B.P., and my own each contained 10 grains of soluble matter; the two tinctures of hyoscyamus, 8 grains; the two tinctures of krameria, 10 grains; the two tinctures of opium, 12 grains. If this process were adopted with 50 per cent. of the proof-spirit tinctures, at least 10,000*l.* per annum would be saved by the chemists of Great Britain.

G. PADLEY, High Street, Boston, Lincs.

#### LIN. AMMONIÆ.

This preparation has been the cause of so much trouble and annoyance to pharmacists that a recent writer has proposed to improve it almost beyond recognition by the addition of turpentine—possibly a useful addition in many cases, but I think a needlessly radical change.

When solution of ammonia, in larger proportion than the B.P. directs, is agitated with olive oil, a yellowish watery mixture results, instead of a white creamy emulsion; but I find that, after mixing in the official proportions, solidification may be avoided without detracting from permanency by a small further addition of solution of ammonia. I therefore suggest that the following formula be adopted by the authorities at the next revision of the Pharmacopœia:—

	Parts
Olive oil .. .. .	6
Solution of ammonia .. .. .	2
Mix, shake well, and add	
Solution of ammonia .. .. .	1
Shake again.	

It is to be regretted that commercial requirements have not received consideration by the introduction of nut oil into the Pharmacopœia, a perfect substitute for the more costly olive in this and numerous other instances.

GOTH.

#### COD-LIVER OIL EMULSION.

In making an emulsion the main thing is to select a thin fresh oil, and the finest formula that I know of free from noxious oils—quillaia, senega, acid. phosph., benzoin, tolu, &c.—is the following. It is really to be commended as a thorough preparation; it keeps indefinitely in all climates, never separates, pours easily, and is miscible with all fluids—

Poly. tragacanth. .. .. .	80 grs.
.. acacia .. .. .	5iiss.
.. marante .. .. .	80 grs.

Rub up well in a mortar with

Ol. morrhue (thin and fresh) .. .. .	80 fl. oz.
--------------------------------------	------------

Rub to consistence of cream, transfer to a 3 gall. bottle, add a'l at once

Mixed { Aqua .. .. .	70 fl. oz.
{ Glycerini .. .. .	10 "

Shake well for 10 minutes, and then pour in

Spt. chloroformi .. .. .	3iiss.
Ess. limonis .. .. .	ʒ 160

Shake again well and bottle.

#### ALOES.

"Is it best to advertise one preparation extensively, and so create a name for it, or to advertise a large number?"

This is a question on which, seeing what has been done by our largest patent-medicine manufacturers and others, there can hardly be two opinions. Almost all of them have only advertised one or two preparations; they have created a large demand for them, and many of them have made large fortunes. If the money which they spent in advertising had been distributed among a large number of preparations, the result would probably have been that none would have been sold very largely, and that the total sales would have been far behind those of the one or two that have been extensively advertised. Again, if an article is thoroughly well known (and this can only be attained by extensive advertising) people will ask for it whether it continues to be advertised or not. If it is not well known, as soon as the advertisements drop, so does the sale. Therefore I think it is better to advertise one preparation extensively than to advertise a large number.

"The best way to conduct the Minor examination so as to be a real test of efficiency."

In my opinion there will be no real test of efficiency until the examination is divided into two parts, the theoretical one day, the practical next; the theoretical examination to be conducted by means of pen, ink, and paper, a certain time allowed, and the same questions to be set to the men on printed forms all round; the papers to be signed by a *nom de plume*, of which the President alone holds the rane keys; the examiners to award their individual marks, the mean of which percentage constitutes a pass. For the practical on the following day, the examiners to be armed all with the same questions, tests, &c., to be given to the men all round, and numbers of marks given to the candidates according to their answers and analysis; the candidate to be made aware of his fate on the third day. Then, and not until then, will the examination be a fair and square one to all concerned, and then, and not until then, will the best man come out first.

A. HOWARD, Ely.

Like several papers read at the Conference, a few of those that we have selected from the pile of post-cards indicate that the authors will require to continue the investigation of the subjects. Nevertheless the suggestions which have been offered are of considerable value, and many of them are thoroughly practical in character. The post-cards bearing plans of chemists' shops which have been received are reserved for the competition which is now proceeding, and in which we invite all to join.

The even character of the papers in this competition compels us to divide the guinea; one half of it going to Mr. G. Padley, of Boston, for his preliminary note on "The preparation of tinctures," and the other half to Mr. H. Kemp, 254 Stafford Road, Manchester, for his note on the preservation of leeches.

#### THE MEDICAL AND PHARMACEUTICAL CONGRESS AT BARCELONA.

(From our Special Correspondent.)

ONE of the special features in connection with the Barcelona Exhibition is the series of conferences or congresses which have been held this summer. There have been about a dozen of these altogether, on subjects comprising science and art under their multifarious aspects and diverse branches. All the world has been invited, but the world outside Spain has responded very gingerly, and the latest congress, namely, the one arranged for the discussion of medical and pharmaceutical subjects, has been no exception in this respect. The inauguration of this medical and pharmaceutical congress took place in the Science Hall of the Exhibition Buildings on September 9 in the presence of about 500 doctors and pharmacists. The Alcalde of Barcelona, Don Francisco de Paula Rius y Taulet, opened the session, and was supported by the bishop of the diocese, the president of the Organisation committee, the rector of the university, and the parliamentary representative of the province. Many representatives also attended on behalf of the Royal Academy of Medicine and Surgery, the Pharmaceutical College, and various other local, scientific, and literary associations. Among the foreign representatives of pharmacy present I find only Dr. E. Burrows, of London; Mr. Monrad Kron, of Bergen; and M. Biber, of Geneva.

The Mayor of Barcelona pronounced an eloquent address of welcome to the assembled members, and prophesied abundant fruits as the result of these scientific gatherings. He urged in the assembly the great duty of devoting their energies to the discussion of their subjects in a manner that would tend to elucidate practical means of alleviating and combating the ills of suffering humanity, and trusted that the discussions could bring to light some new scientific fact that would render it a benefactor to the afflicted. Dr. Don Juan de Rull en delivered the inaugural address, in which he dwelt on the special advantages such a congress presented for arriving at facts and conclusions owing to the facilities afforded for expounding, combating, and sifting out theories, and the benefits likely to accrue from the publicity each would be able to give to his own experiences on the various matters in debate. After sundry other addresses, all of which were

received with considerable enthusiasm, the representatives of medicine and pharmacy met separately, and proceeded to the election of their respective committees. The following gentlemen were elected presidents for the medical conferences: Señores Rius y Taulet, Rodriguez Mendez, and Gasset, of Montpellier; Señor Mosie, of Montpellier; Signor Sciamanna, of Rome; and M. Eustache, of Lille.

The medical sections were arranged into four, viz medicine, surgery, hygiene, and general, with presidents, vice-presidents, and secretaries for each. The pharmaceutical sections were similarly divided, and comprised pharmacology, chemistry, and practical pharmacy. A fourth section was added to cover general pharmaceutical subjects. All the gentlemen appointed as officers in these sections are either residents here or in other parts of Spain.

The first general session of the medical section was held on the following day at four in the afternoon under the presidency of Dr. D. Francisco de Paula Campa, of the University of Valencia, in the absence of Dr. D. Juan de Rull. A paper was read by Dr. Salter, the thesis being "Epithelial Tissue regarded as a System, and its Physiological and Pathological Importance." The active multiplication of the epithelial cells was one of the leading features of the paper. Some discussion followed mainly affecting the pathological aspect of the thesis, but as the stipulated time had elapsed before the speakers had all been heard the discussion was adjourned.

The next paper was read by Dr. Vilato, the thesis being entitled, "The Inner Working of the Nervous System;" The theory maintained by Dr. Vilato is that the nervous system contains only cells and tubes; he expounded the functions of both, and entered into detail on the three orders of sensations capable of being experienced. Dr. Vilato had not concluded when the time expired, and as none claimed the right of addressing the meeting the discussion was considered at an end.

Antisepsis generally and the action of antiseptics formed the subject of the next thesis. Dr. Espina y Capó opened the discussion, and aroused a much more animated debate than any that had preceded it. "Does infection," asked the learned doctor, "exist in the patient or in the atmosphere?" and when and how should antisepsis be employed?" His theory comprised asepsis and antisepsis; in other words, what proceeds from without and what owes its origin to the disease itself. The latter, he held, is all that the doctor has to combat; he also gave his views as to the employment of antiseptics. The next speaker was Dr. Call, who explained a suture under various conditions as an antidote to infection. This met with very heated opposition, it being contended that the practice of to-day is to cure a wound by hermetically closing it. Another doctor held that in surgery the simplest means are the surest, and that a cure is not perfect when a wound has to be opened and closed. Another argued that asepsis was merely perfect cleanliness—the maximum of cleanliness on the part of the surgeon; and that antisepsis was a means whereby everything was alienated that might prejudice the patient. Various and opposing opinions were expressed on the use of boiled and unboiled water in surgery. The doctrine of spontaneous suppuration also found supporters amongst the members, while there were not wanting those who averred that cleanliness was next to godliness, and as such a very good substitute for antiseptics.

On the same day there also appeared on the paper "Contagion and Prophylaxis of the Tuberculosis;" "How to Harmonise the Spirit and Language of Criminal Law with the Present Stage of Phrenopathic Science;" and again "What share has the Nature of Micro-organisms in Morbid Processes of Parasitic Origin, and the Conditions of the Individual, of the Tissue and of the Region wherein the said Processes are Developed."

The general sessions of the Pharmaceutical Congress were held daily at 3 P.M., but the special sittings for each section were held daily at 9 A.M. in the University.

The work of the pharmaceutical section was commenced on September 10, under the presidency of Dr. José Antonio Fernandez, of Seville. Dr. Basagaña read a paper on "Ranunculacea," and his paper gave rise to an animated debate. The prevailing opinion appeared to be that whatever plants are used in pharmaceutical preparations should be thoroughly desiccated, unless in cases where the utilisable portions consisted of volatile principles.



The first general session opened on Monday, September 10, at 3 p.m., under the presidency of the Rector of the University. The thesis for the day was "Which of the two Prevailing Chemical Theories is deserving of Preference in Pharmaceutical Teaching?" Dr. Botet, military pharmacist, declared himself an unconditional partisan of the theory of Gerhard's types; but being reduced to the sphere of speculative chemistry, the debate was limited to only a very small number of pharmacists, although many well-known authorities were present. At the same time the ground gained by the unit theory was obvious. In reference to this, Dr. Botet lamented the want of a suitable nomenclature, and remarked that a colleague had formulated a very concise one in Spanish.

Returning to the thesis on "Contagion and Prophylaxis of the Tuberculosis," which occupied the attention of the Medical Congress at its second session, a paper was read by Señor Suñer y Capdevila, summarising the various experiments made from the discovery of the bacillus up to the present time, and the different origins of contagion. Dr. Robert took up the discussion avowedly from a hygienic point of view, and stated that in Europe alone one million people fall victims yearly to tuberculosis, and that thousands upon thousands of heads of cattle are annually sacrificed to the same disease. Many, said the speaker, are the causes of the propagation of tuberculosis, and alluding to contagion he affirmed that tuberculosis phthisis is in a slight degree contagious. At this stage the discussion gradually assumed a form of interest which may be safely described as purely local, and may be studied to advantage by the resident sanitary inspectors. Reverting again to the thesis, Dr. Esquerdo maintained that although tuberculosis is with human beings a disease of parasitic origin, yet that it is either not contagious at all, or, if so, only to an infinitesimal degree. He based his conclusion on his hospital practice. Assuming the contagious theory, Dr. Tolosa Latour touched briefly on the relations between subjects such as those existing between the wet-nurse and infant, and other cases wherein legislation might with justice to humanity intervene. The debate occasionally waxed warm, but the general consensus of opinion favoured the non-contagious theory.

The practical pharmacy section occupied the attention of the Congress on September 11. The theme of discussion in the morning bore mainly on the preparation of subnitrate of bismuth, according to the formula of the Spanish Pharmacopoeia. Three Spanish professors maintained that the process was defective, and a fourth held that the product should be washed until a perfectly neutral salt was obtained.

A feature in the series of discussions was the warmth imparted to the discussion on the respective merits of lanoline, vaseline, and common lard. Dr. Jimeno staunchly championed the popular vaseline in a way that would have won the hearts of the Chesebrough Company, averring that no other lubricant was so admirably adapted to the reigning ideas of the medical world, and the eulogy, told out in the sonorous language of Castille, had in it a sterling ring of fame. Lanoline, however, was by no means friendless.

The problem as to "the most suitable methods of disinfection in various epidemics" gave rise to very little debate, the members contenting themselves with sitting meekly at Dr. Jimeno's feet and applauding his dicta and conclusions, which were briefly: "That the antiseptic action of disinfectants is purely chemical, and disorganises the organic element by reduction." "The greater the reducing power the greater the antiseptic property." "Starting from the chemical activity of disinfectants and their economy, preference should be meted out in the following order: hypo-nitrous vapours; chlorine; sulphurous acid; solution of alkaline permanganates and of corrosive sublimate; ferruginous, cupric, argentic salts; hydro-carburets in general and volatile oils." "The process of disinfection should be the same in all cases of epidemics: (1) By the disinfection of contaminacious matter and rooms principally with the three first-named antiseptics. (2) By the use of the same in the drains, and, where the quantity available is inadequate for the purpose, general aseptic washing with hot water should be resorted to. (3) It is futile to attempt to disinfect the atmosphere. (4) The patient should be surrounded with aseptic influences or conditions, and should not be subjected to the disagreeable, not to say prejudicial, influences of antiseptics and disinfectants."

The pharmacists were again busy on September 12 discuss-

ing the most desirable methods for combining astringent and ferruginous products. Tartrate of iron was specially commended for such a purpose; ferrous sulphate is one of the worst of the iron salts. An excellent paper was read by Dr. Bonet on "Oxide of Antimony," and was followed by another on "Oxalic Acid and the Modes of obtaining it." Dr. Vivas, of Gerona, submitted a very ingenious apparatus for securing and utilising various gases.

The afternoon sitting on the same day was devoted to papers on mineral medicinal waters. The respective merits of natural and artificial mineral waters were canvassed.

On September 13 the medical section had before them papers in reference to the nature of the microbe, and were favoured with the practical researches of Dr. Fargas and others. There is a microbiological laboratory here, which was of course patriotically eulogised as one of the best in Europe. Dr. Salazar, though he declares he is not one of the rabid advocates of parasitism, explained that in his view microbes produce results in the human body different to those produced in the animal world. He regretted that experts had not brought their experiments to bear on microbes scattered through the atmosphere, and animadverted strongly against those who see microbes in everything, a theory which, if true, he added, would simply render existence impossible. Dr. Sanmartin supported the traditional view as to contagious diseases, and declared that tuberculosis is not contagious, while cholera is only contagious from the miasmatic point of view. Various others of the faculty followed for and against, the weight of opinion being somewhat adverse to the microbian theory beyond certain rational limits.

The pharmacological sitting on the same day was for the most part devoted to the consideration of the advantages that might be derived from the practical experiments of rural pharmacists with indigenous plants.

Friday's sitting in the Science Hall will be remembered by the hypnotists as their great field day. "Hypnotism and Suggestion" was introduced by Dr. Tolosa Latour, who opened the ball by descanting on the dangers attending this therapeutic process in certain cases, and advocating that its employment should be regulated by the legislature, declared that none but duly-qualified medical men should be permitted to practise it. His views were seconded by Dr. Giné. Various cases were cited by others who were strong supporters of the system, some of which are familiar. This developed into a most animated discussion, and the general verdict was that in the hands of competent medical men it is a useful therapeutic agent. A doctor from Madrid stated he had been attacked by the Bishop of Madrid because of lectures he had recently delivered on the subject, but the faculty did not intend letting the ultramontane party ruin therapeutics; he cared nothing for the episcopal ridicule; it would be better for that dignitary to confine himself to matters spiritual. Another doctor considered that hypnotism is a therapeutic agent of the moral order. The discussion eventually terminated with a resolution to appoint a committee to discuss the proposal of Dr. Giné as to appealing to the Government for special legislation.

During the sitting of the Medical Congress on September 14, an interesting debate took place on measles, and on the reappearance of the disease several times in the same patient. The exponent cited a case of a child who was attacked by measles on three separate occasions within the space of three months. The order of the day in the pharmaceutical sitting of the same date was a paper on "Modifications in Pharmaceutical Legislation," with the object of keeping it up to the standard of the modern development of science.

Various other subjects were treated in both the medical and pharmaceutical sections of the Congress on September 15, but owing to the length of the papers and the limited time at disposal, little beyond the formal reading of the papers could be got through.

Our London friends, Messrs. Burroughs, Wellcome & Co., are on hand in full force, and both doctors and pharmacists are well supplied with mementos from this firm, who seem to be represented "on Greenland's icy mountains and India's coral strands." Their exhibit here is one of the best.

The sessions of the Congress were wound up on Sunday last by a brilliant reception given by the Alcalde in the saloons of the "Casas Consistoriales." A splendid lunch was served in the course of the morning.



# EDUCATIONAL INFORMATION.

## PHARMACEUTICAL.

THE position of the pharmacist in the United Kingdom is considered by many to be an unenviable one. His education and qualifications raise him above the rank of the ordinary trader, yet his relations to "trade" are so self-evident that he is not included amongst the professions. In consequence pharmacy is now generally regarded as a "craft"; this does not sound so shoppy as "trade," and it is a designation which pleases most of those who have the good or bad fortune to be pharmacists. Pharmacy is to many an enjoyable occupation; it provides the excitement and variety of change which is a concomitant of shopkeeping, and the quasi-scientific nature of the calling brings in a certain amount of experimental or analytical work which has little connection with money-making, and may therefore be appreciated by some individuals. The money part of the business is rather an indefinite quantity nowadays. The apprentice begins a pupillage of four or five years by payment of a premium varying from 25*l.* to 100*l.*, and in rare cases 200*l.* Outdoor apprentices do not as a rule pay a premium. On the completion of apprenticeship remuneration begins on a low scale, viz., about 50*l.* a-year for outdoor assistants, and 20*l.* to 30*l.* indoor, advancement being steady for good men, qualified assistants receiving 70*l.* indoor and 100*l.* to 150*l.* outdoor. Higher salaries are only obtainable in exceptional circumstances. Young pharmacists, therefore, know that they can only get the full benefit of the good things of pharmacy by going into business on their own account, and the indefinite nature of the enterprise undoubtedly tempts many to embark. It must be said, however, that there still exists in pharmacy an excellent field for energy, and that perseverance and skill properly applied invariably bring a good return.

Assuming that the pharmaceutical tyro has the business qualifications latent within him, we shall point out what educational and technical qualifications are required, and as there is one law for Great Britain and another for Ireland we shall take the larger island first.

### GREAT BRITAIN.

It was enacted by the Pharmacy Act of 1868 that "it shall be unlawful for any person to sell or keep open shop for retailing, dispensing, or compounding poisons, or to assume or use the title 'Chemist and Druggist,' or chemist or druggist, or pharmacist, or dispensing chemist, or druggist, unless such person shall be a pharmaceutical chemist or a chemist and druggist."

A pharmaceutical chemist is a person who has passed the Preliminary, Minor, and Major examinations of the Pharmaceutical Society of Great Britain, and a chemist and druggist is only required to pass the Preliminary and Minor examinations, which give all the qualification that is required by the State for the purposes of trading.

The Preliminary is a written examination held at various centres in England and Scotland on the second Tuesdays in January, April, July, and October. The subjects of the examination are:—

**LATIN.**—Grammar; Translation of simple sentences from English into Latin; translation into English of a paragraph from Caesar, *De Bello Gallico*, Book I., or Virgil, *Æneid*, Book I.

[In each examination paper a passage from both of the authors is given, but a candidate is required to translate one only of such passages.]

**ARITHMETIC.**—The first four rules—simple and compound; vulgar fractions and decimals; simple and compound proportion; a thorough knowledge of the British metrical systems of weights and measures.

**ENGLISH.**—Grammar and composition.

In awarding marks spelling and the quality of the handwriting are taken into account.

The questions for the examination are set by the College of Preceptors, who examine the papers, award marks, and

report to the Boards of Examiners, who formally approve of the report. At the centres the candidates are supervised by a superintendent (a prominent local pharmacist), but he asks no questions, and has no control whatever over the results. The papers which are given at this examination are regularly printed in *THE CHEMIST AND DRUGGIST* on the Saturdays after the examination has been held. The fee for the examination is 2*l.* 2*s.* Application is to be made on a printed form and the fee paid to the Registrar, 17 Bloomsbury Square, W.C., not less than fourteen days prior to that on which the examination is to be held.

The Boards of Examiners accept in lieu of their own examination certificates of having passed certain examinations, a list of which can be obtained from the registrar. It is provided that *Latin, arithmetic, and English must be included in the subjects of the examination for which the certificate was granted*, but if a candidate holds a certificate of having passed in Latin, arithmetic, and English, (these being a part only of the examination, the certificate will not be accepted. The fee of 2*l.* 2*s.* has to be paid whether a candidate submits a certificate or passes the Society's own examination.

We strongly recommend all youths to get through this examination before they enter upon shop duties, and employers should not take apprentices until they have passed the examination; then they can turn to the work of the pharmacy with some hope of taking an interest in it, and can at once begin to acquire that book knowledge which will assist them in the practice of pharmacy. During apprenticeship an elementary knowledge of the sciences allied to pharmacy can be acquired by attending evening classes, such as are provided in the principal towns of Great Britain. The lectures are not quite in the lines of the Minor examination, but they give a good foundation, and this proves valuable when the student enters upon special studies immediately before examination. Pharmaceutical work proper should receive careful attention during apprenticeship; practice in the manufacture of galenicals and the dispensing of prescriptions should be continuous. "The Art of Dispensing" (3*s.* 6*d.*), "Commentary on B.P., 1885" (*THE CHEMISTS' AND DRUGGISTS' DIARY*, 1886, 3*s.* 6*d.*), are useful aids for the student. When the apprentice has fulfilled his indentures he should enlarge his experience for two or three years, or until he is twenty-one, studying all the time in anticipation of a collegiate course of training for the Minor. It is quite possible that he may be fit to pass the examination by self-tuition, but we strongly recommend all who can afford it to take the instruction from pharmaceutical Gamaliel. It is always a satisfactory thing to look back and say, So-and-so was my teacher, and So-and-so was a fellow-student of mine, but it is a much more important thing to take wisdom from a man's own lips rather than from his books.

### Minor.

The Minor Examination can only be passed when the candidate has reached the age of twenty-one. This examination is a *vivâ voce* one, which is conducted by two Boards of Examiners. The one for England and Wales meets at 17 Bloomsbury Square, London, in the months of February, April, June, July, October, and December of each year, that for Scotland meeting at 36 York Place, Edinburgh, in the months of January, April, July, and October. Candidates have the option of being examined where they choose, and they must inform the registrar when they apply whether they wish to be examined in London or in Edinburgh. If this is not done a candidate residing south of the Border will be entered for the London examination, while a candidate residing in Scotland will be entered for the Edinburgh examination.

Application must be made and the fee (3*l.* 3*s.*) paid to the registrar on or before the first day of the month in which the examination is to be held. Forms of application are obtainable from the registrar. The form shows that the



candidate has for three years been engaged in the translation and dispensing of medical prescriptions, and must be certified by a registered chemist or medical practitioner. A certificate of birth must also accompany the application. In the following paragraphs we give the official syllabus of this examination in smaller type than our own comments upon it:—

**BOTANY.**—To recognise the more important indigenous plants used in medicine. To possess a general knowledge of the elementary structure of plants, and the structure and distinctive characters of roots, stems, leaves, and their parts. To name and describe the various parts of the flower.

The indigenous medicinal plants are shown to the candidate in the dried state mounted on cards, and in the season fresh specimens are also submitted. He is expected to give the botanical names of the plants, the natural order to which they belong, and what part of the plant is used in medicine. The rest of the paragraph fairly describes what is required of the candidate, but it is customary for the examiner to ask some questions regarding the fruit, and of this the candidate should have a fair knowledge. The examiner is generally well provided with fresh specimens, and these are freely used in ascertaining the extent and nature of the candidate's knowledge. Half an hour is usually devoted to the subject, and the failures in it (calculated on the number of failures in all subjects) amount to about 16 per cent. in Edinburgh and 11 per cent. in London. This indicates that a candidate should give it careful attention.

**CHEMISTRY.**—To recognise the ordinary chemicals used in medicine. To possess a *practical* knowledge of the processes by which they are produced, the composition of such as are compound, and explain the decompositions that occur in their production and admixture, by equation or diagrams. To determine practically, by means of tests, the presence in solution of the chemicals in common use, and explain the reactions which occur in each case. To possess a general knowledge of the laws of chemical philosophy, and a *practical* knowledge of the means of determining specific gravities, densities, and temperature, and of the instruments appertaining thereto, and the physical and chemical constitution of the atmosphere.

This is, in all respects, the most important subject of the examination. In preparing for it the student should have thorough practice in the testing of inorganic salts containing one base and one acid, as well as the tests for quinine, strychnine, and morphine, which *may* be asked although not insisted upon. Apart from general testing the student should acquaint himself with the appearance of all pharmacopœical chemicals, the methods by which they are prepared and the reactions taking place therein, the official tests of identity, the tests for impurities, and be able to apply these things if called upon to do so. "A general knowledge of the laws of chemical philosophy" implies that the student should get up the atomic weights of the elements, the laws of combining proportion, the principal facts of the atomic theory and the like. The knowledge of physical science required is not extensive, but it is such that the student should endeavour to practise the requirements before he enters for the examination; thus, he should take specific gravities of liquids and solids, of liquids with the weighing bottle as well as with the hydrometer, get up the principle of the hydrometer, and ascertain the basis of Twaddell's, Beaume's, and Sikes's scales. Solids (both those soluble and insoluble in, and heavier and lighter than water) should also be experimented with. The principles of the barometer and thermometer, their construction and uses, are also to be learnt, and their application should not by any means be left until the student meets the examiner, for then he is almost certain to make quickly the acquaintance of a purer atmosphere than exists in the examination laboratory, *i.e.*, the one upon which the examiner questions him. We may add that frequently this examination extends over half-an-hour, and that many official salts are given for recognition. The failures in the subject are over 20 per cent. in London and about 15 per cent. in Edinburgh.

**DISPENSING.**—To weigh, measure, and compound medicines; write the directions in concise language in a *neat and distinct* hand; to finish and properly direct each package. [In awarding marks in this subject, the time taken by the candidate in doing the work is taken into account.]

A great improvement has been inaugurated in this department of the examination since last year. There are two

examiners in the subject in London and one in Edinburgh, each examiner having counter accommodation for six candidates. The bottles are ordinary shop rounds arranged on the walls in alphabetical order. Apparatus and accessories are conveniently arranged for the candidate, and while he works the examiner leaves him entirely to himself. Two hours are allowed for the amount of work given, which consists of at least two prescriptions, so that a mixture, emulsion, box of pills or suppositories and blister, plaster or ointment may have to be dispensed in that time. The work given would not take more than an hour to do in the shop, but allowance is given for nervousness and the other impeding causes common to the examination-room. There is nothing but practice which will enable anyone to pass creditably in this subject, and the student should begin early to practise with the prescriptions given in "The Art of Dispensing." This contains a large number of examination and other difficult prescriptions which more than cover the ground traversed in the examination. Failures are high in this subject, *viz.*, over 21 per cent. in London and 16 per cent. in Edinburgh. It is of the highest importance to the candidate that he should be quite *au fait* in this department, as it is the subject above all others which determines the candidate's qualification to conduct a pharmacy.

**MATERIA MEDICA.**—To recognise specimens of roots, barks, leaves, fruits, resins, gums, animal substances, &c., used in medicine; give the botanical and zoological names of the plants, &c., yielding them, and the natural families to which they belong; name the countries and sources from which they are obtained, the official preparations into which they enter, and judge the quality and freedom from adulteration or otherwise of the specimens.

The foregoing paragraph scarcely requires addition, but we may emphasise two points, *viz.*, that he should know the adulterants of common drugs when he sees them, and be able to detect the drugs by themselves or from a heap of a miscellaneous character. Also he should know what are the active principles of the most important drugs, and how they exist naturally. The subject is not so crucial a one to candidates as others, the failures being under 10 per cent., and frequently as low as 5 per cent.

**PHARMACY.**—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, and have well marked physical characters, such as extracts, tinctures, powders, &c.; to give the proportions of the active ingredients, and possess a practical knowledge of the processes and the principles of the processes by which they are made, and of the best excipients and methods of manipulation for forming emulsions, pills, &c.

This is, like dispensing, to a large extent a shop subject, and the student who has had practice in making infusions, ointments, pills, syrups, tinctures, and other official galenicals has a great advantage over those who have not that experience. Many other preparations are placed upon the examiner's table, so that the candidate has an opportunity of showing whether he knows them or not, and the examiner takes them as the basis for questions regarding the ingredients which they contain, the method of preparation, and their strength. It is evident that the candidate who has got up the subject by practice as well as reading has the best chance of distinguishing himself. The examiner's object is to ascertain if that is the case, and he arrives at his decision mainly by the intelligence of the candidate's answers.

**PRESCRIPTIONS.**—The candidate is required to read without abbreviation autograph prescriptions; translate them into English; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of posology; also to render in good Latin ordinary prescriptions written in English.

Latin and posology are the parts of this subject, and the requirements are fully defined in the syllabus. Comparatively few fail in the subject, but this must not be taken to mean that it is not of great importance. It requires constant observation of the posology of physicians' prescriptions; and careful study of the British Pharmacopœia. The student should make it a practice of copying prescriptions in good and unabbreviated Latin, and not allow his knowledge of parsing to run to seed. There are some chapters in "The Art of Dispensing" which will be found of great service here, and Ince's Latin Grammar is useful to those who are rusty in that department.



*Major.*

Having passed the Minor examination, the student is placed on the register of chemists and druggists, and has satisfied the legal requirements for those who wish to practise pharmacy. But there is still another examination which may be passed—viz, the *Major*, which gives the title "pharmaceutical chemist," and confers on the holder immunity from service on juries, but no other State privilege. The examination is optional, is open to all who have passed the Minor examination at least three months previously, and costs 5*l.* 5*s.* The examination consists of one day's (six hours) work in practical chemistry, as the result of which the candidate submits a written report, and, if he has shown sufficient skill and knowledge in this work, he is examined orally on the following day in theoretical chemistry and physical science, botany, and materia medica. The official syllabus gives a good definition of the scope of the examination. It is as follows:—

**BOTANY.**—This comprises an intimate acquaintance with the parts of the flower, fruit, and seed; the functions and mode of arrangement of the different organs of plants; a knowledge of the general principles of classification, and of the Linnean and De Candolle's systems. The candidate must be able to distinguish practically between each of the following natural orders:—Ranunculaceæ, Papaveraceæ, Cruciferae, Malvaceæ, Leguminosæ, Rosaceæ, Cucurbitaceæ, Umbelliferae, Compositæ, Gentianaceæ, Convolvulaceæ, Solanaceæ, Atropaceæ, Labiatae, Scrophulariaceæ, Oligonaceæ, Euphorbiaceæ, Orchidaceæ, Iridaceæ, Liliaceæ, Melanthaceæ, Ramiaceæ; and refer to their respective orders such specimens as may be shown to him.

**CHEMISTRY.**—This comprehends an intimate knowledge of the laws of chemical philosophy, a practical knowledge of the nature and properties of the elements and their compounds, both organic and inorganic, especially those used in medicine or the arts. The different combinations and decompositions must be explained by equations; also the *qualitative* analysis of the more important chemicals, *e.g.*, nitrates, chlorides, carbonates, sulphates, phosphates, oxalates, tartrates, &c., and the detection of impurities in them, and the *volumetric* estimation of the strength of alkalimetric preparations in which standard solutions are ordered to be used. An elementary knowledge of the properties of light, heat, electricity, and magnetism is also required.

**MATERIA MEDICA.**—This comprises a practical knowledge of the methods of estimating the value of important drugs, of obtaining their active proximate constituents in a separate state; of identifying them and ascertaining their purity or impurity by tests.

Those who are associates of the Pharmaceutical Society when they pass the Major may in the July following compete for the Pereira and other medals, to which book prizes are added. The examination is a written one in the subjects of the Major. Apprentices of the Society under 21 are also eligible to compete for the Jacob Bell Scholarships (30*l.* and free education) and the Redwood Scholarship (20*l.*), for which the examination is the same, viz., English, Latin, arithmetic, elementary chemistry, botany and pharmacy, and French or German. The examination is held in July at the preliminary centres. Particulars from the registrar.

## PHARMACEUTICAL SCHOOLS.

It is the custom for fully 90 per cent., if not more, of pharmaceutical students to spend some time in preparatory study at a special school in London or the large provincial cities. This is a wise thing to do, but we may repeat that the student who lays the foundation of his knowledge by taking advantage of local facilities, such as association classes, both Kensington science lectures, and the like, is infinitely wiser than the man who leaves everything to the "coach" or professor. We therefore emphasise the necessity of preparation for the pre-examination period of study. Great Britain is well supplied with schools. In London, Manchester, Liverpool, Edinburgh, and Glasgow there are establishments conducted on a commercial basis, and the local associations at Leicester, Birmingham, Newcastle, Nottingham, Sheffield, and Aberdeen have made arrangements for the education of assistants and apprentices.

## THE SCHOOL OF PHARMACY,

17 Bloomsbury Square, London, W.C.

This is the oldest school of the kind in the kingdom, its forty-seventh session formally commencing on October 3, when Mr Henry E. Roscoe, M.P., will address the students. The

school was established by the Pharmaceutical Society and continues under its patronage. The staff of teachers is excellent and comprises:—

Professor Attfield, Ph.D., F.R.S., F.I.C., F.C.S.—Practical chemistry.

Professor Wyndham R. Dunstan, M.A., F.I.C., F.C.S.—Chemistry.

Professor Joseph R. Green, M.A., B.Sc.—Botany.

Mr. Joseph Ince, F.L.S., F.C.S.—Pharmacy and practical pharmacy.

Mr. Edward Morell Holmes, F.L.S.—Materia medica.

The session commences on October 1, and extends to the end of July. "Minor," "Major," and other students can enter at any period, but are recommended to join the classes on October 1, when the first course of lectures begins. Other convenient periods are the beginning of January or of March, or the beginning of April. The first course of instruction, extending over six months, covers the work of the Minor examination, and the second course of four months carries the student on to the Major. This applies to the lectures in botany, chemistry, and materia medica, but in pharmacy there are two courses each of five months' duration and both the same. There are also courses of instruction in practical chemistry, but as every student works independently of the others pupils can enter for any period at any date. The following table shows the arrangement of the classes for the Minor course, and we have included practical chemistry two hours daily (six months for 8*l.* 10*s.*):—

Day	Subject	Time	Fee
Monday .. ..	Chemistry	9 A.M.	4 <i>l.</i> 4 <i>s.</i>
	Practical pharmacy	3-6 P.M.	2 <i>l.</i> 2 <i>s.</i> (1½ hour)
Tuesday .. ..	Chemistry	Two hours	8 <i>l.</i> 10 <i>s.</i>
	Practical chemistry	9 A.M.	
Wednesday ..	Chemistry	5 P.M.	2 <i>l.</i> 2 <i>s.</i>
	Practical chemistry	Two hours	
Thursday ..	Chemistry	9 A.M.	
	Practical pharmacy	3-6 P.M.	2 <i>l.</i> 2 <i>s.</i>
Friday .. ..	Materia medica	Two hours	
	Pharmacy	10 A.M.	2 <i>l.</i> 2 <i>s.</i>
Saturday ..	Practical chemistry	5 P.M.	
	Botany	Two hours	3 <i>l.</i> 3 <i>s.</i>
Saturday ..	Pharmacy	9 A.M.	
	Practical chemistry	5 P.M.	
Saturday ..	Botany	Two hours	
	Practical chemistry	9 A.M.	
Total ..			22 <i>l.</i> 3 <i>s.</i>

The chemical laboratory is open from 9 A.M. to 5 P.M. daily, and students may work in it for any time from one hour to the whole day, the fees being fixed in proportion to the time put in. In addition to the time fixed in the above table, some period of the week is absorbed by tutorial or revision classes, microscopic work in botany and materia medica, and class examinations. The work for the Major is on a similar scale, but students who proceed to the second or Major course are admitted to the classes at considerably reduced fees.

Application for admission to the school, or for further information, may be made to either of the professors and lecturers.

## SOUTH LONDON SCHOOL OF PHARMACY (LIMITED);

325 Kennington Road, London, S.E.

This school will attain its majority next year; it is, in fact, contemporaneous with the Pharmacy Act, and was established by Dr. John Muter to meet the demand for thorough education in pharmacy. Its uninterrupted progress is the best proof of the success which has followed it. Instruction is given for the Minor and Major examinations. The staff of teachers consists of Dr. J. Muter, M.A., F.R.S. Edin., F.I.C., F.C.S., &c., chemistry, physics, and botany; W. H. Dodd, F.C.S., &c., materia medica and pharmacy; L. De Koningh, F.I.C., F.C.S., analytical chemistry; W. Townsend, A.C.P., Latin, mathematics, and mechanics.

These gentlemen are assisted by demonstrators, and have the co-operation of a Council of Education, upon which are four examining members who are practical pharmacists, and have no pecuniary interest in the school.

The session lasts from the middle of September until the middle of July. A fresh course of lectures (commencing at the foundation of each subject) is started on or about



September 15, January 10, and April 15, and these are, therefore, the best dates for a student to commence, but more advanced students may enter at any time. The laboratories are open from 9 A.M. to 5 P.M.

The fees are:—(1) Three months' admission to the *Minor* classes, including chemistry, practical chemistry, botany, materia medica, Latin, pharmacy, and dispensing, 10*l.* 10*s.*, and 2*l.* 2*s.* for every month, or part of a month, thereafter. (2) Three months' admission to the *Major* classes, including botany, chemistry, physics, and materia medica, with advanced instruction in analytical chemistry and in the analysis of drugs, 12*l.* 12*s.*, and 3*l.* 3*s.* for every month, or part of a month, thereafter.

Mr. Dodd, secretary to the school, will supply further information.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY,  
*Trinity Square, Borough, London, S.E.*

Though not established so long as the schools before mentioned, this college has a wonderful reputation amongst pharmaceutical students, and the periodically published lists of successful men show that a very large number in passing through the courses of instruction provided secure that education which is necessary for the examinations. The principals of the college are Messrs. G. S. V. Wills, F.L.S., F.R.M.S., &c., and H. Wootton. Mr. Wills is the director, and he is assisted in the principal departments by Mr. W. Watson Will, F.C.S., and several demonstrators.

The session began on September 4, and extends to the end of July. It is divided into terms of seven weeks, two terms forming a complete course for the *Minor*. In this there are lectures in botany, chemistry, dispensing, materia medica, pharmacy, and physics, with frequent tutorial or revision classes in the same. Pharmacy and dispensing are also taught practically, two hours are put in at practical chemistry every day, and the mysteries of prescriptions are unfolded on three days a week. The fee for the complete course of instruction is 9*l.* 9*s.*, and subsequently 3*l.* 3*s.* per term of seven weeks.

The *Major* course consists of lectures on heat, light, electricity, magnetism, materia medica, botany, organic and inorganic chemistry, and four hours' instruction in practical chemistry daily. The fee for the course is 10*l.* 10*s.*, but students may enter for a complete session (twelve months), thus covering the whole of the work for the *Minor* and *Major* by payment of a fee of 15*l.* 15*s.*

In addition to the foregoing a course of instruction is provided for the Preliminary examination, fee 1*l.* 1*s.* per month, and there are evening classes for the Preliminary (Friday, 7 to 9), and for the *Minor* (Tuesday and Thursday, 7 to 9). The fees for these classes are low. The college also provides instruction for provincial students by post. This is done by means of printed lectures which are sent to the students weekly. We cannot say that this system is as good as personal teaching; but it has this great advantage that it keeps the student on the proper lines of study, directs him, places before him important matters which his inexperience would cause him to overlook, and thoroughly interests him in the work. The system has undoubtedly proved of great value to many who without it would have had nought else to incite them to study, or help them in their difficulties. Full particulars regarding this and other matters pertaining to the college will be found in the prospectus of the college.

THE CENTRAL SCHOOL OF CHEMISTRY AND  
PHARMACY,

173 Marylebone Road, N.W.

The head teachers at this well-known school are Mr. J. Woodland, F.L.S., F.C.S., &c., Mr. T. A. Ellwood, F.C.S., A.I.C., &c. The school was established by Mr. Woodland in conjunction with Mr. A. Pearson Luff, who, after distinguishing himself in pharmacy and science, has now transferred his energies to medicine. The high reputation which the school attained while it was known as "Luff and Woodland's" has been kept up by Mr. Woodland since he has assumed the sole directorship of the concern, and students may rely upon receiving a sound education at the "Central," and at the same time the requirements of the examinations are kept in view. The scale of fees is fixed according to the length of the period of study; thus for the next course of lectures, which

commences on October 25, the fee until the December examinations is 6*l.* 6*s.*, and until February 10*l.* 10*s.* Evening classes are also held on Mondays, Wednesdays, and Fridays at 7.30. Fee, 1*l.* 1*s.* per month.

THE CITY SCHOOL OF CHEMISTRY AND PHARMACY,  
27 Chancery Lane, London, W.C.

This school was established in 1882, the principal being Mr. Maurice Williams. Instruction is given in all the subjects for the *Minor* and *Major*, including practical chemistry, microscopy, and pharmacy. The day classes occupy the whole day, viz. from 10 to 5, the fees for a three months' course being—*Minor*, 6*l.* 6*s.*; and *Major*, 5*l.* 5*s.* Evening classes meet on Tuesdays and Thursdays, from 6 till 10, 1*l.* 11*s.* 6*d.* being the fee for a three months' course one evening per week. These classes should be popular, as the school has a central situation, and is within a few minutes' walk of "the Square."

OWENS COLLEGE, MANCHESTER.

In the Pharmaceutical department of this college there are day and evening classes in the following subjects:—Chemistry, theoretical and practical, by Professors Dixon and Schorlemmer; botany, ditto, by Professor Williamson; materia medica, by Professor Leech and W. Elborne; pharmaceutical chemistry, by W. Elborne; pharmacy and dispensing, by W. Elborne. Students entering for the day classes in theoretical and practical chemistry and botany are required to pay the college admission and library fees, 1*l.* 6*s.*, and those entering for any of the evening classes an admission fee of 2*s.* 6*d.* The class fees range from 2*l.* 2*s.* to 4*l.* 4*s.* for each day class, the fee for practical chemistry being according to the time put in. The evening classes begin in October and terminate at the end of March. Fees for all the classes, 11*l.* 11*s.*

MANCHESTER COLLEGE OF CHEMISTRY AND PHARMACY,  
225 and 227A Oxford Street, Manchester.

The principal of this college, Mr. W. Spencer Turner, pharmaceutical chemist, established himself as a teacher in 1878, and his success induced him to remove to Manchester in 1882, where he has continued to afford excellent instruction for all the examinations of the Pharmaceutical Society. Instead of lecturing his pupils Mr. Turner adopts the plan of discussing the subjects with them in small classes, and personally supervises the progress of each pupil. The system has worked well, because it enables pupils to get a thorough and practical knowledge of the subjects without loss of time, and there is no "cramming." There are two series of classes, viz. (1) afternoon, evening, and once-a-week classes, in the subjects required in the *Minor* and *Major* examinations; and (2) "full-time classes" for those who are not attending business. The part-time classes are specially suited to assistants and apprentices engaged in business in Manchester. The director will furnish particulars of the days and hours of meeting; but we may state that the fees for the afternoon and evening classes are 1*l.* 1*s.* per month, with a reduction for a longer period. The once-a-week class meets on Tuesdays from 2 to 6 P.M.; fee, 15*s.* per month.

The full-time class for the *Minor* works daily from nine to four except Saturday. All the subjects are taught, about two hours daily being devoted to practical chemistry and dispensing. Fee, 3*l.* 3*s.* per month, or from the middle of October to the December examination, 5*l.* 5*s.*, and so on in proportion to the period of study. In the full-time *Major* class four hours per day are devoted to the book subjects and four hours to practical work. The fee is 2*l.* 2*s.* per month. Private tuition is also given by arrangement, as well as instruction for the Preliminary (fee, 1*l.* 1*s.* per month).

LIVERPOOL SCHOOL OF PHARMACY,  
36 Oxford Street, Liverpool.

This school has the rather unique distinction of having laid the foundation of the training of two men who have become Pereira medallists. The principal, Mr. John S. Ward, F.C.S., pharmaceutical chemist, has formulated an excellent curriculum for the *Minor* and *Major*, and the knowledge which he imparts, with the assistance of demonstrators, is more than is required for a "squeeze through." In the *Minor* 200 lectures are given in botany, chemistry and



physics, materia medica and pharmacy, with two dozen lessons in prescription reading, two hours' work daily in practical chemistry, and an afternoon weekly at the dispensing counter. There are three courses of three and a half months each yearly, beginning in September, January, and April. Fees, 8*l.* 10*s.* per course, or 2*l.* 2*s.* per month. The foregoing refers to the day classes; afternoon and evening classes are also held, in which the instruction is efficient and the fees low. The Major curriculum is on the same lines as the Minor one, but each pupil puts in four hours' work daily at practical chemistry, which extends to urine analysis and other analytical processes which are useful to the pharmacist in after life. The fees and periods of study are the same as in the Minor course. The fees for the afternoon and evening classes are 1*l.* per month, and for the Preliminary 2*l.* 2*s.* per quarter. In Mr. Ward's prospectus the work of all the classes and the arrangement of the time are detailed. The principal of this school is assisted by Mr. H. B. Thornton, F.C.S.

#### MIDLAND COUNTIES CHEMISTS' ASSOCIATION.

This association have educational chambers at 90 New Street, Birmingham, where the session begins on October 1. The class for the Preliminary meets on Monday and Wednesday evenings at 8.30, two subjects being taken each evening. The fee for the session (October to June) is 3*l.* 3*s.*, and Mr. Stokes Dewson is the teacher. The Minor course includes lectures in chemistry, and chemical physics, Tuesdays, 8.30 to 9.30 P.M., by Mr. Stokes Dewson; botany and materia medica, Fridays, 8 to 9 P.M., by Mr. F. H. Alcock; pharmacy, Fridays, 9 to 10 P.M., by Mr. Geo. E. Perry.

Further particulars may be obtained from Messrs. Chas. Thompson, 159 Stratford Road, Sparkbrook, and F. H. Alcock, F.C.S., F.I.C., Temple Chambers, Broad Street Corner, Birmingham.

#### LEICESTER AND LEICESTERSHIRE CHEMISTS' ASSOCIATION,

*St. George's Chambers, Grey Friars, Leicester.*

Classes for the study of materia medica, pharmacy, and botany are held in the above rooms. A class for the Preliminary examination under the direction of Mr. Knowles, classical tutor, is held every Monday evening; fee, 5*s.* per term to associates. Practical chemistry lectures by Mr. S. F. Burford, F.C.S., in the Leicester technical school laboratory. The laboratory is fitted up for practical chemistry, and there is a materia medica collection. All particulars regarding the classes can be obtained from Mr. J. J. Edwards, hon. sec.

#### NORTH OF ENGLAND PHARMACEUTICAL ASSOCIATION.

This association has arranged for classes in botany, chemistry, materia medica, and pharmacy, which are held at the Durham College of Science. Botany is taught by Mr. D. E. Stuart, B.Sc., commencing October 19, and continued on Fridays at 8 P.M.; fee, 1*l.* 1*s.* There are three classes in chemistry, inorganic and organic, and a class for practical work. These classes are all held in the evening, the teachers being Professor Bedson and Mr. Saville Shaw; fee, 10*s.* 6*d.* each class, except the practical, which is 2*l.* 2*s.* Materia medica is taught by Mr. Alfred Wright, A.K.C., on Wednesdays at 8 P.M., beginning on October 17; fee, 1*l.* 1*s.* Mr. B. S. Proctor, F.I.C., is the teacher of pharmacy, the class being held on Mondays, beginning October 15; fee, 10*s.* 6*d.* Students may also attend the college during the day on payment of the usual fees. If ten students do not enter for the classes in materia medica and botany they will not be held; assistants and apprentices in the district who require instruction in these subjects should therefore enter without delay.

#### SHEFFIELD SCHOOL OF PHARMACY.

This school is under the auspices and the classes are held at the rooms of the Sheffield Pharmaceutical and Chemical Society, Fitzalan Square. The session begins October 15, and terminates April 26, 1889. Chemistry is taught by Mr. S. T. Rhoden (Thursdays, 8.30 P.M.); materia medica, by Mr. J. Humphrey (Tuesdays, 8.30 P.M.); botany, by Mr. G. A. Grierson (Mondays, 8.30 P.M.); practical chemistry, by Mr. J. H. Worrall, F.C.S. (Fridays, 8.30 P.M.); and this year a

class on practical pharmacy has been added, the teacher being Mr. G. Ellinor, pharmaceutical chemist, also one on pharmaceutical assaying. The fees throughout are moderate. It has been intimated that attendance at these classes will meet the requirements of the Examining Board of the Royal Colleges of Physicians and Surgeons, England.

#### TULLY'S POSTAL SYSTEM.

Mr. John Tully, M.S.C.I., "Hill's Prizeman," of 185 St. George's Road, West Hill, Hastings, has been successful in preparing students through the post. His system resolves itself into three sets of lessons—No. 1 is for Preliminary students; No. 2 is intended for Minor students under twenty years of age, and is of special value during apprenticeship; No. 3 leads directly up to the Minor. In all the sets questions are put at regular intervals, and the answers are to be submitted to the tutor. If the answers are not satisfactory, they are returned to the student until he shows that he has mastered the subject.

#### SCOTLAND.

There are several teachers in Edinburgh who make a speciality of pharmaceutical education. Dr. Drinkwater, F.C.S., 41 Chambers Street, assisted by Mr. J. G. Ross, B.Sc., instructs Minor and Major pupils in the scientific subjects of the examinations. At the Royal Dispensary, West Nicholson Street, Mr. William Duncan, pharmaceutical chemist, receives pupils for the Minor and Major at day and evening classes, which are conducted on the tutorial system. Mr. Duncan also imparts instruction in dispensing and practical chemistry. The Edinburgh School of Pharmacy and Chemistry, Marshall Street, Nicolson Square, also receives pharmaceutical pupils and has three sessions annually, beginning in January, May, and October; Mr. R. Urquhart is the secretary. The North British Branch of the Pharmaceutical Society has special arrangements with the lecturers at the College of Surgeons and Minto House, whereby pharmaceutical pupils are admitted to the lectures on botany and chemistry (practical and theoretical) at reduced fees. Full particulars may be obtained from Mr. J. R. Hill, 36 York Place, Edinburgh. A large number of chemists' assistants and apprentices avail themselves of the evening classes in chemistry, physics, and botany, which are delivered in the Heriot Watt College, Chambers Street. The fees for the classes are low, and the instruction afforded is of the best character. Full particulars may be obtained at the college.

The Aberdeen School of Pharmacy is under the auspices of the local Pharmaceutical Society. The classes meet in the rooms of the latter in Bridge Street, where there is an excellent laboratory in which students are allowed to work on application. Mr. Ogilvie holds a tutorial class in botany, and there is also a class for the Preliminary. In Glasgow Dr. David Lees, a Major man, conducts a school of pharmacy at 180 West Regent Street, all the subjects for the Minor and Major being taught. Further particulars may be obtained from either of the teachers above mentioned.

#### SOCIETY OF APOTHECARIES OF LONDON.

##### ASSISTANTS' EXAMINATION.

An examination for a certificate of qualification to act as assistant in compounding and dispensing medicines is held on the third Thursday of every month at 5 o'clock. Candidates intending to offer themselves for examination are required to give notice, and to pay the fee, 2*l.* 2*s.*, seven days previously. The subjects of the examination are:—(1) translating prescriptions; (2) the British Pharmacopœia; (3) materia medica and botany; (4) pharmacy and pharmaceutical chemistry.

Candidates are expected to display a general knowledge of structural and physiological botany, to describe and identify typical specimens, and to give the distinguishing characters of the following natural orders:—Compositæ, Convolvulaceæ, Cruciferae, Cucurbitaceæ, Labiata, Leguminosæ, Liliaceæ, Melanthaceæ, Papaveraceæ, Ranunculaceæ, Rosaceæ, Scrophulariaceæ, Solanaceæ, Umbelliferae.

Attendance is given daily at the Hall, Blackfriars, E.C., from 10 to 4 o'clock, Saturdays excepted. In the event of failure, a candidate cannot be re-admitted under three months. The fee for re-examination is 1*l.* 1*s.* Dr. Thomas



Peregrine is the secretary to the Court of Examiners. An interesting account of the examination by a successful candidate will be found in *THE CHEMIST AND DRUGGIST*, October 29, 1887, page 558. This issue is out of print.

### TEXT-BOOKS.

It may be useful for those who are beginning their studies to give here a list of the books which are recommended by the different schools and teachers:—

"Art of Dispensing" (Office of *THE CHEMIST AND DRUGGIST*).  
 Attfield's "Chemistry" (Gurney & Jackson).  
 Balfour's "Elementary Botany" (A. & G. Black).  
 Bentley's "Organic Materia Medica" (Longmans).  
 Bentley's "Structural and Morphological Botany" (Churchill).  
 Bentley's "Student's Guide to Systematic Botany" (Churchill).  
 British Pharmacopœia (Spottiswoode & Co.).  
 Cooke's "Botany."  
 Everett's "Physics" (Blackie).  
 Fittig's "Pharmacographia" (Macmillan).  
 Fownes's "Chemistry" (Churchill).  
 Ganot's "Physics" (Longmans).  
 Ganot's "Popular Natural Philosophy."  
 Gerrard's "Materia Medica and Pharmacy" (Lewis).  
 Huxley's "Elementary Course of Botany."  
 Holmes's "Botanical Note Book" (Christy).  
 Ince's "Latin Grammar of Pharmacy" (Baillière).  
 Muter's "Key to Organic Materia Medica" (Simpkin, Marshall).  
 Muter's "Manual of Analytical Chemistry" (Simpkin, Marshall).  
 Pereira's "Selecta & Prescriptis" (Churchill).  
 Prantl & Vane's "Text Book of Botany" (Sonnenschein & Co.).  
 Proctor's "Lectures on Practical Pharmacy" (Churchill).  
 Remington's "Practice of Pharmacy" (Burrroughs, Wellcome & Co.).  
 Remson's "Organic Chemistry" (Macmillan).  
 Roscoe's "Lessons in Elementary Chemistry" (Macmillan).  
 Slatter's "Qualitative Analysis" (Murray).  
 Southall's "Organic Materia Medica" (Churchill).  
 Stillé & Maish's "National Dispensary" (Churchill).  
 Thorpe's "Inorganic Chemistry" (Collins).  
 Tilden's "Chemical Philosophy."  
 Wills's "Chemistry."  
 Wills's "Elements of Pharmacy."  
 Wills's "Hand-book to Practical Analysis."  
 Wills's "Materia Medica."  
 Wills's "Prescripta."  
 Wotton's "Problems in Chemical Physics."

The works which are distinguished by black type form a useful collection for Minor students, and the set can be purchased for about three guineas.

### IRELAND.

Pharmacy in Ireland is, like most things there, in a transition state at present. The Pharmacy Act (Ireland) which came into force in 1875 has in a great measure failed to effect the objects for which it was enacted, and a Bill is now before Parliament to amend it. At present the only grade created by the Pharmaceutical Society of Ireland is that of "pharmaceutical chemist," but there exist in the country a large number of "chemists and druggists" who were in business before the passing of the Pharmacy Act, or have entered it since. Some of these have unquestionably the right to assume the title "chemist and druggist," and to sell poisons, and others who have not that right have from time to time been prosecuted by the Pharmaceutical Society for infringing the Pharmacy Act, but the prosecutions have latterly failed, owing to the want of a register of chemists and druggists. It is therefore proposed in the Bill now before Parliament to register all who are in the trade at present under certain conditions. The chemists and druggists in business before 1875 will be registered as a matter of course; those who have gone into business since will be registered on passing a modified examination; and assistants and apprentices to chemists and druggists who have completed four years' service will be registered under similar conditions, the title conferred in all cases being "registered druggist," and those who so become qualified will have the privilege of keeping open shop for the sale of poisons, but not of compounding or dispensing medical prescriptions. That is a right which belongs exclusively to pharmaceutical chemists

in Ireland. For this title there are two examinations, the Preliminary and the Qualifying. Candidates must be 16 years of age before they can enter for the *Preliminary*, which is held on the first Mondays of January, April, July, and October; fee, 2*l.* 2*s.* The following are the subjects:—

**LATIN.**—To translate into English, and parse, one or more sentences from a Latin author:—*Cæsar's Commentaries*, First Book; or *Virgil's Æneid*, First Book.

**ENGLISH.**—To write on a subject selected by the examiner; to write from dictation, and to have a knowledge of grammar, orthography, and parsing.

**ARITHMETIC.**—The first four rules, simple proportion, and decimals. To describe the weights and measures of the Pharmacopœia, and of the metric system.

**REQUIREMENTS OF BOTANY**, extending only to the morphology of the plant.

**CHEMISTRY AND PHYSICS.**—*General properties of matter*:—Principal characteristics of solids, liquids, and gases. *Weight and measure*:—Relations between, both in the British and in the metric system. *Specific gravity*:—Definition of—commonly known modes of obtaining—in solids and liquids. *Temperature*:—Effects of change of—on gases, and generally on solution of solids. *Thermometer*:—Conversion of F. scale into C. scale, and *vice versa*—theory of construction of. *Atmospheric pressure*:—Boyle's law—barometer—principle of—construction of mercurial—relation of columns of various fluids which might be used—aneroid. *Elements and compounds*:—Into what broad classes subdivided—examples—general properties, sources, and mode of preparation of N. C. P. Hg. Fe. Pb. Cu. S. O. H. K. Na. I. Br. and Cl.—conditions under which chemical combination occurs—distinction between chemical and physical change—combustion—examples—combination by weight—law of multiple proportions—atomic theory—atoms—molecules—atomic weight—valency—law of Avogadro—alkalies—acids—salts—symbols—formule—equations—exercises. *Allotropy, isomerism*:—Examples. *Atmosphere*:—Physical and chemical constitution—impurities—how affected by respiration of animals, action of plants, and by combustion. *Water*:—Composition of—synthesis—varieties of—impurities.

As in Great Britain certain examinations are accepted in lieu of this. These are any examination accepted by the General Medical Council and the Preliminary examination of the Pharmaceutical Society of Great Britain; but such examination must be passed at least two years before the candidate presents himself for the licence of this Society, and the usual fee of two guineas must be paid.

Before the student can enter for the examination for the licence he must fulfil certain conditions in addition to passing the Preliminary at least one year previously, viz.—(1) be 21 years of age; (2) have two years' [in the case of those who passed the Preliminary before January 1, 1884, and four years in the case of those who have passed it since] practical experience in compounding and dispensing in the establishment of a pharmaceutical chemist or apothecary in Ireland or that of a pharmaceutical chemist or chemist and druggist in Great Britain; (3) show that he has attended a course of practical chemistry of not less than three months' duration, and have actually worked at the bench during 100 hours of the said course, in the laboratory of one of the following institutions:—The Carmichael College, Aungier Street, Dublin; the Cecilia Street School of Medicine, Dublin; the Government School of Science, South Kensington; the Ledwich School of Medicine and Surgery, Peter Street, Dublin; the Queen's College, Belfast; the Queen's College, Cork; the Queen's College, Galway; the Royal College of Science for Ireland, Dublin; the Royal College of Surgeons in Ireland, Dublin; the Working Men's Institute, Belfast (Chemical School); Trinity College, Dublin.

The examinations are held on the first Wednesday and two following days of January, April, July, and October; fee, 5*l.* 5*s.*

**BOTANY.**—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

**MATERIA MEDICA.**—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the official preparations into which they enter; and to detect adulterations.

**GENERAL AND PHARMACEUTICAL CHEMISTRY.**—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia, to describe the processes by which they are obtained; qualitative analysis (including the tests of the Pharmacopœia) and volumetric analysis; and to submit to a practical examination in these subjects.

**PRACTICAL PHARMACY.**—To translate Latin prescriptions; to detect



dangerous doses; to compound and dispense correctly. To explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them.

Further information may be obtained from the registrar, Mr. A. T. Ferrall, 11 Harcourt Street, Dublin. In THE CHEMIST AND DRUGGIST, September 24, 1887, and March 31, 1888, are accounts of the examination by candidates, which will be found useful. We may explain that pharmaceutical chemists of Ireland cannot start in business as such in Great Britain without passing the British examinations, nor can British "chemists and druggists" start in business as pharmaceutical chemists in Ireland without passing the Irish examinations.

**SCHOOL OF PHARMACY, APOTHECARIES' HALL OF IRELAND.**—This school is intended for candidates for the Hall licence who wish to get up their pharmacy; but we introduce it here for convenience sake. Instruction is given in nomenclature, in weights and measures, processes and apparatus of the British Pharmacopœia, in the preparation of official compounds and the application of tests (B.P.) for purity, in the reading in full Latin, compounding and dispensing of prescriptions, and on incompatibility of drugs. The demonstrator is Mr. R. G. Montgomery, B.A., M.B., T.C.D., L.A.H. The fee for a three months' course is three guineas. Further particulars may be obtained from Mr. C. Wright, 40 Mary Street, Dublin.

#### PHARMACY IN THE COLONIES, &c.

The Minor certificate may be said to be recognised all the world over, so far as Greater Britain is concerned. In the principal Australasian Colonies the title "pharmaceutical chemist" is generally used, and before it can be acquired examinations similar to the Preliminary and Minor of Great Britain have to be gone through. In Cape Colony a medical board examines and pronounces upon the fitness of any one who desires to start in business. In all these colonies, however, the production of the Minor certificate serves the applicant the trouble of going through another examination, and after paying a fee he is registered in Australia as a pharmaceutical chemist. The certificate also holds good anywhere in Canada—that is to say, any of the provincial associations there who have the power of regulating pharmacy give the holder another certificate on payment of a fee of £10. In some parts of the United States the facilities to be British chemist and druggist are as favourable, and in other cases the respect shown to the British qualification assures that merely a formal examination will have to be passed. The moral of all this is that no chemist's assistant could think of emigrating until he has passed the Minor. The Irish diploma is similarly respected.

#### PHARMACY IN THE SERVICES.

Many young men in the drug trade have a strong desire to see their abilities more manifestly in the service of their country, and for their benefit we append the following particulars:—

**Army.**—The Medical Staff Corps of the army has associated with it a body of soldiers known as "military compounders of medicine." To be one of them the assistant must enlist in the ordinary manner to serve twelve years with the colours (six years active and six years in the reserve). Age, 19 to 28; height, 5 ft. 2 in. to 5 ft. 5 in. Physical fitness and good character are essential. "Minor" not necessary, but it is a recommendation. Dispensers do duty in the military hospitals generally, and not with a particular regiment. Pay varies from 1s. 6d. (3rd class private) per day to 5s. 6d. on promotion to warrant officer. As a sergeant compounder of medicines receives 1l. 10s. a week, food (meat and bread), lodging, clothing, fuel, and light all free, which are equal to another 30s., or a total of 3l. a week. The hours of duty vary greatly, but are not at all unreasonable. Dispenserships are obtainable—after enlistment—by passing examination, comprising:—

- (1) Latin names and words used in prescriptions.
- (2) Pharmacy; thorough knowledge of the various articles of materia medica and preparations in the British Pharmacopœia.
- (3) Drugs and pharmaceutical remedies, appearances, taste, and odour.
- (4) Poisons: names, doses, and antidotes.
- (5) Practical dispensing.

The examining board consists of three army medical officers, and the examination lasts three days. Before being examined for dispenser the candidate must pass through a course of ambulance and other drill, professional lectures, outlines of anatomy and physiology, bandaging, use of surgical instruments and appliances, application of dressings, &c., and nursing generally. Military compounders have to wear their uniform constantly, but permission to wear plain clothes is sometimes given, when particularly desired. The uniform is dark blue with Geneva cross on the right arm. Full details regarding the duties of the corps will be found in "The Manual of the Medical Staff Corps" (Longmans, 2s.).

**Navy.**—The best thing for pharmacists "in the navy" is the naval hospital dispenserships, which are under the control of the Admiralty Department, but are not really in the navy afloat. The duties of naval dispensers are performed in the hospitals at the various stations of H.M. Government throughout the world, so that the number of men is limited. Those desirous of appointment (whose age must not be less than 20 or more than 25) must make written application to the Director-General of the Medical Department of the Navy, and as vacancies occur they will be ordered to attend at his office at the Admiralty. The requirements from candidates are:—(1) They must be in good health; (2) of good character; (3) and possess either the Minor or Major qualifications of the "Pharmaceutical Association of Great Britain," the Major men having preference and precedence. The duties are those of hospitals generally, the dispenser getting charge of stores, and if he is a competent chemist he may have the chance of being appointed to something better. The pay is on the following scale:—

				Per day
				s. d.
Under 5 years' service	..	..	..	5 0
" 8 "	..	..	..	5 6
" 11 "	..	..	..	6 0
" 14 "	..	..	..	6 6
" 17 "	..	..	..	7 6
" 20 "	..	..	..	8 6

And for each additional year of service after twenty years 6d. a day extra, until the maximum of 10s. per diem is reached. In addition to the above dispensers are provided with quarters and allowed 6d. a day in lieu of fuel and lights: moreover the charge of stores (only granted to Major men) involves an additional allowance at Haslar and Plymouth hospitals of 2s. a day; at any other hospital at home or abroad, 1s. a day. Owing to the increased cost of living abroad, officers at Malta and the Cape of Good Hope receive, 2s. a day, at Jamaica and Bermuda 3s. a day and at Hong Kong 4s. a day extra. Dispensers are included in the lists of salaried officers, with all the advantages pertaining thereto, and are entitled to superannuation under the Act of Parliament of 1859. Twenty-eight days' annual leave, exclusive of Sundays, is allowed to all officers; those serving abroad may reserve it from year to year so as to obtain a lengthened period of absence, such reserved leave not in any case to exceed six calendar months.

#### MEDICAL.

**MEDICINE** is a popular profession. There are few who do not respect "the doctor," none who have not been under his care at some time, and not many who can afford to do without him when he is wanted. More than 17,000 names are to be found on the medical register, and it is computed that about 1,000 students join the ranks every year. We have popularity on both sides, therefore, yet it is not easy to say why so many have the wish to cure the ills of their fellow-creatures, for the difficulties of entrance into the medical profession are considerable; once the four years' curriculum is completed, and he secures the diploma which entitles him to registration, the young medico finds the substantial reward hard to win. The profession is gorged; competition is keen, and descends in a few cases now and then to unprofessional methods; and the work is hard and uncertain. Office hours do not exist for the doctor, who must, in order to be successful and to come up to the public's idea of the doctor's duty to the public, be ready at all hours to attend to their wants. Then the reward is not very



great. Comparatively few medical men ever attain a position of affluence, and a large percentage are absolutely impecunious. These facts are almost as well known as that the sun will rise to-morrow. We may not see the sun, however, and by the same reasoning the medical student persuades himself that he may not become one of the impecunious.

On the whole the pecuniary outlay in order to become a doctor is not great. About 150*l.* will cover the lecture fees and other similar expenses during the four years' curriculum, and personal expenses are a thing which have to be reckoned with in any circumstances. Place this expense against that required in training any young man in a business which will place him in as good a position socially and otherwise, and we believe that the medical will come out the better of the two processes of sinking funds.

### THE STUDENT.

A sound scholastic education is an essential preliminary to entrance to the medical profession. The more cultured a youth is before he begins his medical studies, the more is he likely to come out of that sometimes rough career with the characteristics of a gentleman. "Gentleman" and "medical man" ought to be synonymous terms, but they are not so always. Evidence of a sound education is required by the General Medical Council before a youth's name is placed on the register of medical students. Here we may explain that before the student can enter for the final qualifying examination of any institution a period of forty-five months from the date of registration as a medical student must have been spent in study. Students should, therefore, pass the Preliminary examination before they enter upon their medical studies. It is possible in certain circumstances to have registration antedated, but the foregoing advice is sound and the best for the student to follow. The regulations of the Medical Council for preliminary general education are that no person shall be allowed to be registered as a medical student unless he shall have previously passed (at one or more examinations) a preliminary examination in the following subjects:—

1. English language, including grammar and composition.
2. Latin, including grammar, translation from specified authors, and translation of easy passages not taken from such authors.
3. Elements of mathematics, comprising:—(a) Arithmetic, including vulgar and decimal fractions; (b) algebra, including simple equations; (c) geometry, including the first book of Euclid, with easy questions on the subject-matter of the same.
4. Elementary mechanics of solids and fluids, comprising the elements of statics, dynamics, and hydrostatics.
5. One of the following optional subjects:—(a) Greek, (b) French (c) German, (d) Italian, (e) any other modern language, (f) logic (g) botany, (h) zoology, (i) elementary chemistry.

The foregoing requirements comprise the minimum amount of preliminary education accepted by any qualifying body; but there are others (chiefly universities) which have a more extended examination, and these are specially mentioned in what follows. The General Medical Council do not conduct an examination themselves in preliminary education, but they recognise, in whole or part, certificates of the examinations of certain examining bodies, which are comprised in the following list. It need scarcely be said that anyone who holds an arts degree from any British or Irish university does not require to show further evidence of preliminary education. *The Pharmaceutical Societies follow the General Medical Council in framing their lists of certificates accepted in lieu of their own Preliminary examinations, and most of the following will be accepted by the said Societies:—*

**University of London.**—Matriculation examination. Preliminary scientific (M.B.) examination.

**University of Oxford.**—Responsions. Moderations.

**University of Cambridge.**—Previous examination (higher).

**Oxford and Cambridge.**—Senior local examinations, certificates to include Latin and mathematics. Junior local examinations, certificate to include Latin and mathematics, and also one of the following optional subjects:—Greek, French, German.

**Oxford and Cambridge Schools' Examination Board.**—Certificate to include arithmetic, including vulgar and decimal fractions; algebra, including simple equations; geometry, including the first two books of Euclid; Latin, including translation and grammar, and one of the following optional subjects:—Greek, French, German.

**University of Durham.**—Examinations for students at end of first year, and for certificate of proficiency.

**Universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews.**—Preliminary examination for graduation in science, medicine, or surgery. Local examinations (junior or senior certificate), which must include English literature, arithmetic, algebra, geometry, Latin, and also one of the following optional subjects:—Greek, French, German.

**University of Dublin.**—Entrance examination. General examination, at end of Freshman's year.

**Queen's University in Ireland.**—Local examinations for men and women, certificates to include all the subjects required by the General Medical Council. Entrance or matriculation examination. Previous examination for B.A. degree.

**Royal University of Ireland.**—Matriculation examination.

**Victoria University.**—Entrance in arts examination, to include all the subjects. Preliminary examination, to include Latin.

**Royal College of Preceptors.**—Examination for a first or second class certificate (1st or 2nd division), algebra, geometry, Latin, and a modern language to be included.

**Society of Apothecaries of London.**—Examination in arts.

**Royal College of Physicians and Surgeons, Edinburgh.**—Preliminary examination.

**Faculty of Physicians and Surgeons of Glasgow.**—Preliminary examination.

**Royal College of Surgeons in Ireland.**—Preliminary examination, certificate to include mathematics.

**Queen's College, Belfast, Cork, or Galway.**—Matriculation examination.

**Intermediate Education Board of Ireland.**—Junior, middle, or senior grade examination, the certificate to include all the subjects.

**St. David's College, Lampeter.**—Responsions, certificate to include all the subjects.

**Educational Institute of Scotland.**—Preliminary medical examination.

**Scottish Education Board.**—Leaving certificate (lately added).

**Pharmaceutical Society of Great Britain.**—Preliminary and Minor examinations, *pro tanto*.

**Pharmaceutical Society of Ireland.**—Preliminary examination, *pro tanto* (lately added).

In addition to the foregoing, the Council accepts certificates from certain Indian, colonial, and foreign universities.

In regard to the certificates of the Pharmaceutical Societies a word of explanation will not be out of place. They are accepted, it will be seen, *pro tanto*, and as the Minor of the British Society includes botany and chemistry, it follows that the student is excluded from the optional subjects, also that the Preliminary covers English, Latin, and arithmetic, so that to complete the requirements the student must produce evidence of having passed an examination in algebra and geometry (3 b and c), as well as in elementary mechanics of solids and fluids (4). An Irish student who has passed the Preliminary examination of the Society there is exactly in the same position, as that examination includes chemistry and botany. Pharmaceutical students are therefore in a favourable position for entering the medical profession. Further, the courses of instruction in chemistry at all the London pharmaceutical schools are recognised by the Royal Colleges of Physicians and Surgeons, London.

Having passed the necessary Preliminary examinations and entered upon his medical studies in a medical school, or with a medical practitioner, the student should now apply to Mr. W. J. C. Miller, B.A., Registrar of the General Council and of the Branch Council for England, 299 Oxford Street, London, W.; to Mr. James Robertson, Registrar of the Branch Council for Scotland, 1 George Square, Edinburgh; or to Mr. R. L. Heard, M.D., Registrar of the Branch Council for Ireland, 35 Dawson Street, Dublin, for the necessary forms of application for registration as a medical student.

After these are filled up they should be returned to the registrar, who thereupon, being satisfied of their correctness, places the applicant upon the register. The choice of a place of study and the

### QUALIFICATIONS FOR PRACTICE

will largely depend upon the situation of the student. In London there are excellent provisions for medical education and clinical practice, but a great drawback to metropolitan students is the lack of an easily obtainable degree in medicine, and without a degree one cannot place the coveted "Dr." before his name. The diplomas of the colleges and Apothecaries' Hall and the degrees of the London University are practically the only qualifications which are open to London students; still they may journey North or to Ireland for the diplomas of qualifying bodies there, but those at



are just as good, and not less difficult to get. The London University degrees are the only ones obtainable without residence. It may also be explained here that the examining bodies in England (but not in Scotland or Ireland) allow the student to enter for the first professional examination before actually entering upon study in a medical school. This examination embraces chemistry and physics, and sometimes materia medica and pharmacy, so that it is likely that one who has been engaged in pharmacy may be able to dispose of this examination before he leaves the "craft" for good.

We need not refer in detail to the medical curriculum. In some cases it extends over a period of at least forty-five months, and the nature of the work done is fairly represented by the requirements of the examining board for the double qualification of the London colleges, which are:—

Instruction in the following subjects: (a) Chemistry, including chemical physics, meaning thereby heat, light, and electricity; (b) practical chemistry; (c) materia medica; (d) pharmacy.

Dissections at a recognised medical school during not less than twelve months.

Attendance at (a) a course of lectures on anatomy during not less than six months, or one winter session; (b) a course of lectures on general anatomy and physiology during not less than six months, or one winter session; (c) a separate practical course of general anatomy and physiology during not less than three months.

Attendance at (a) a course of lectures on medicine during not less than six months, or one winter session; (b) a course of lectures on surgery during not less than six months, or one winter session; (c) a course of lectures on midwifery and diseases peculiar to women during not less than six months; (d) systematic practical instruction in medicine, surgery, and midwifery; (e) a course of lectures on pathological anatomy during not less than three months; (f) demonstrations in the post-mortem room during the whole period of attendance on clinical lectures; (g) a course of lectures on forensic medicine during not less than three months.

Practice of medicine and surgery during three winter and two summer sessions at a recognised hospital or hospitals.

Attending at a recognised hospital or hospitals during nine months' clinical lectures on medicine, and during nine months' clinical lectures on surgery, and of having been engaged during a period of three months in the clinical study of diseases peculiar to women.

Discharging, after passing the second examination, the duties of a medical clinical clerk during six months, and of a surgical dresser during six months.

Instruction in the practice of vaccination.

The requirements of other qualifying bodies differ from the foregoing in minor details. It will be understood that the student produces evidence of having gone through part or the whole of the curriculum according to the stage of the examination for which he enters.

#### ROYAL COLLEGE OF PHYSICIANS, LONDON.

The *licence* of this college is a qualification to practise medicine, surgery, and midwifery, and is recognised by the Local Government Board as a qualification in surgery as well as in medicine. Fees, 15*l.* 15*s.* There are three examinations: First, chemistry, including chemical physics—viz., heat, light, and electricity; materia medica and pharmacy; and pathology. Second, anatomy and physiology. Final, medicine, anatomy and pathology, including morbid anatomy; the principles and practice of medicine; surgical anatomy and pathology, including morbid anatomy; the principles and practice of surgery; midwifery and diseases peculiar to women; forensic medicine; public health and therapeutics.

Candidates must be 21 years of age before they are allowed to enter for the final examination.

#### ROYAL COLLEGE OF SURGEONS, LONDON.

The membership of this college is very popular with London students, and is more or less esteemed in the provinces. Those who have pursued the whole of their studies in Scotland or Ireland are only admitted to examination on the production of the several certificates required respectively by the College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the College of Surgeons in Ireland from candidates for their diploma, together with a certificate of instruction and proficiency in the practice of vaccination. Those who have pursued their education abroad must show that they have fulfilled the

requirements for the degrees of the universities in which they have studied, as well as attended classes during four years.

The professional examination is divided into two parts, which are, like those of the physicians, held in the months of January, April, July, and October. The fee is 21*l.*, of which 5*l.* 5*s.* is paid on admission to the primary examination. Before admission to this examination the candidate must show, amongst other things, that he has attended a course of lectures on chemistry (such as that at the pharmaceutical schools); but this is not required in the case of those who have passed a satisfactory examination in the subject (such as the "Minor") in the Preliminary examination. The subjects of the primary examination are anatomy and physiology; and of the second or pass examination, surgical anatomy and the principles and practice of surgery, medicine, and midwifery. Candidates who hold a medical degree from a recognised university, or otherwise show that they are proficient in medicine and midwifery, are excused the examination in these subjects.

The *Double Qualification* is an important diploma granted by the conjoint examining board of the two colleges. We have already quoted the requirements for this qualification, and need only add that there are three examinations. To the first of these the student is only admitted at the end of the first year's study; to the second after six months more have elapsed; and to the final at the end of the forty-five months' curriculum, an interval of two years at least having elapsed since the second was passed. The final may be taken in sections, and the total fees are 36*l.* 15*s.* Further particulars may be obtained from Mr. F. G. Hallett, secretary, Examination Hall, Victoria Embankment, W.C.

#### SOCIETY OF APOTHECARIES.

The diploma of this society is now a registrable qualification, as it includes medicine, surgery, and midwifery. It is also cheap, 10*l.* 10*s.* being the fee, of which 4*l.* 4*s.* is paid on application for admission to the *Primary Examination*. This examination embraces the following subjects, divided into two parts, which may be taken together or separately, viz.—(1) may be passed at any period after registration as medical student—chemistry and elementary physics, practical chemistry, materia medica, including the botany of the Pharmacopoeia, and pharmacy and prescriptions; (2) cannot be passed before the completion of twelve months' practical anatomy with demonstrations—anatomy, physiology and histology, including an examination on the living body. The *Final Examination*, which cannot be passed before the expiration of forty-five months from registration as a medical student, consists of two parts, either of which may be taken first, and embraces the following subjects:—(1) principles and practice of surgery, surgical pathology, surgical anatomy and operative manipulation, surgical instruments and appliances, and an examination of surgical cases; and (2) principles and practice of medicine, including therapeutics, pathology, and morbid histology, an examination of medical cases, forensic medicine, toxicology, hygiene, and insanity, obstetric medicine, including gynaecology, and obstetric instruments and appliances.

Particulars of the assistant's certificate of this society are given on a previous page, and further information may be obtained from the Secretary to the Court of Examiners, Apothecaries' Hall, Blackfriars, E.C.

#### SCOTTISH QUALIFICATIONS.

There are three examining bodies in Scotland who grant registrable qualifications, viz., the Royal College of Physicians and Surgeons, Edinburgh, and the Faculty of Physicians and Surgeons, Glasgow, who conjointly have formed a board, their certificate being known as the "triple qualification." Candidates must go through the medical curriculum, including all the ordinary medical and surgical practice, and show that they have amongst other things attended for three months instruction in practical pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of practical pharmacy. There are the usual three examinations, the *first* including chemistry (theoretical and



practical) and chemical physics, elementary anatomy, and histology. The *second* embraces anatomy, physiology, materia medica, and pharmacy, and the *third* or *final* embraces the principles and practice of medicine (including therapeutics, medical anatomy, and pathology); clinical medicine; the principles and practice of surgery (including surgical anatomy and surgical pathology); clinical surgery; midwifery (with gynaecology); medical jurisprudence; and hygiene. Total fees, 26*l*. 5*s*. Full particulars may be obtained from the Secretary of the Royal College of Physicians, Queen Street, Edinburgh.

#### IRISH "QUALIFICATIONS."

Ireland is well supplied with medical schools, and many of the men that they turn out take high rank in the army and Indian medical services. As in London and Edinburgh there are in Dublin Colleges of Physicians and Surgeons, who conjointly grant a licence, while the College of Surgeons in conjunction with the Apothecaries' Hall in Ireland also grant a diploma. Particulars regarding these we give briefly.

L.K.Q.P.C. and R.C.S.I., which being writ large means that the holder of the diploma is a licentiate of the King's and Queen's College of Physicians and Royal College of Surgeons, Ireland. There are four examinations for this, the subjects being for the first those subjects in which training has been had up to this time, viz., anatomy (elementary), chemistry, materia medica, and practical pharmacy. The second examination embraces anatomy, physiology, and practical physiology, including histology. Third, surgery, medicine, midwifery, and medical jurisprudence. The final includes clinical practice in all the departments of medicine and surgery, midwifery, and the like. The total fees amount to 42*l*. Further information may be obtained from the secretary, Mr. Greenwood Pim, M.A., 47 Dawson Street, Dublin.

L.R.C.S. and L.A.H.I.—The Royal College of Surgeons and the Apothecaries' Hall in Ireland grant a conjoint diploma. There are four professional examinations. Subjects:—(1) Physics, chemistry, and anatomy (osteology). (2) Anatomy, physiology, materia medica, and pharmacy. (3) Anatomy, surgery, medicine, and medical and surgical pathology. (4) Medicine, therapeutics, surgery, midwifery and diseases peculiar to women, ophthalmic and aural surgery, and forensic medicine and hygiene. Total fees, 34*l*. 13*s*.

#### MEDICAL DEGREES.

A degree in medicine and surgery is an enviable distinction, and all those in "the profession" who are general practitioners and who have it not would gladly take one in the easiest way possible. There are chances for such in the Universities of St. Andrews and Brussels, where degrees are granted without condition of residence, and by passing a somewhat formal examination. But to those who are entering upon their curriculum, and who are favourably situated as regards a university, we would say, Aim for a degree. Moreover, all degrees are registrable. On this subject the *Lancet* says the Bachelorships of Medicine and Surgery of the universities are registrable qualifications, but their other degrees are merely higher distinctions, in no way necessary for a right to practise. For the Bachelorship of Surgery in the Universities of London, Durham, and Dublin an additional examination must be passed; but in these cases the M.B. is registrable as a qualification in both medicine and surgery. The Mastership in Surgery is given to every candidate in the Scotch universities who passes his examination for the Bachelorship of Medicine; in other universities it forms a separate honour. An additional examination, in many cases exceptionally severe, and (with the exception of the Royal University of Ireland) an interval varying from one to three years after obtaining the M.B. and B.S. degrees, are insisted on by the English and Irish universities. The conditions requisite for obtaining the Doctorate of Medicine also vary. In all universities a specified interval (one to five years) is interposed between the M.B. and the M.D. degrees. In every one, except the University of London (and here it will come into force next year), a thesis must be written by the candidate, and at the Royal University of Ireland a clinical examination must also be passed. At the University of London there is a special examination, and mental physiology is added to the more strictly medical requirements.

At the universities the preliminary regulations are somewhat more strict than with other qualifying bodies. They have Preliminary examinations of their own, but some follow the General Medical Council in accepting the certificates which the Council accepts. Sometimes, also, examinations of one university are accepted in lieu of corresponding examinations at another; thus, Victoria University accepts the Matriculation examinations of the University of London, the Previous examination at Cambridge, Responsions and Moderations at Oxford, or the Leaving Certificate examination of the Oxford and Cambridge Boards, in the place of their own entrance examination; and the Scotch universities and the University of Durham not only accept the certificates of all universities in the United Kingdom, but also, *pro tanto*, those which the General Medical Council accepts, only requiring the candidates to pass in the extra subjects of their own matriculation examinations. The Universities of London, Cambridge, and Oxford, and the Royal University in Ireland, insist on every student passing their own specified examinations for matriculation. For medical degrees at the University of Dublin (Trinity College), every candidate must be a Bachelor in Arts of Dublin, Oxford, or Cambridge. Students should obtain from the university which they desire to matriculate at full particulars regarding the Preliminary examinations.

*University of London.*—Three examinations have to be passed for M.B., viz., the *Preliminary scientific*, embracing inorganic chemistry, experimental physics, and general biology, for a pass, with botany and zoology additional for honours. The *Intermediate* embraces anatomy, physiology, and histology, materia medica and pharmaceutical chemistry, and organic chemistry; and the *M.B. examination*, or Final, includes general pathology, general therapeutics, and hygiene, surgery, medicine, obstetric medicine, forensic medicine. The examination includes questions in surgical and medical anatomy, pathological anatomy, and pathological chemistry. Total fees, 15*l*. Bachelors of Medicine may enter for the B.S. degree, the examination comprising printed papers on surgical anatomy and surgical operations, examination and report on cases of surgical patients, performance of operations upon the dead subject, application of surgical apparatus, and *vice versa* interrogation. Fee, 5*l*. At this stage we may leave the student, the doctorate degrees being in the region of his own experience to come.

*University of Oxford.*—The medical school of this university is "looking up." As a medical school it is still in its infancy, and has only about thirty students, but the number is increasing yearly, and it is believed that a thoroughly good education can be obtained here. Professor W. R. Dunstan is a lecturer in the school. Students must be graduates in arts (B.A.) of the university, and that, we believe, is not a very difficult matter; even "M.A." has been got for, as Sir Frederick Bramwell has it, "next to nothing." The B.M. and B.Ch. degrees are obtained after passing the "Preliminary;" a first examination in organic chemistry, human physiology, human anatomy, and a second examination in medicine, surgery, midwifery, pathology, forensic medicine with hygiene, and materia medica with pharmacy. The first examination and the examination in materia medica and pharmacy may be passed as soon as the Preliminary examination in medicine has been completed. Organic chemistry may be taken separately. A diploma in public health is granted to Bachelors of Medicine who pass examination in hygiene, sanitary law, sanitary engineering, and vital statistics.

*University of Cambridge.*—Before obtaining entrance at the medical school of this university the student must pass, at least, the "Previous" examination in classics and mathematics. The curriculum for M.B. extends over five years, and there are three examinations, the subjects being: *First*, chemistry and physics, and elementary biology. *Second*, human anatomy and physiology, and pharmaceutical chemistry. *Third*, principles and practice of surgery (with operative and clinical surgery, which give the degree of B.S.), midwifery, and diseases of women, pathology, principles and practice of medicine, elements of hygiene, medical jurisprudence.

The *Victoria University* confers degrees upon students of Owen's College, Manchester; University College, Liverpool; and Yorkshire College, Leeds. For Bach. Med. and Surg. the examinations (preliminary, intermediate, and final) are



most identical, so far as the subjects are concerned, with those of the London University,

The University of Durham grants licences in medicine, surgery, and sanitary science; and the degrees of Bachelor in Medicine, Bachelor in Surgery, Master in Surgery, and Doctor in Medicine. For the degree of Bachelor in Medicine (M.B.) there are three professional examinations: the first including anatomy, chemistry, and physics and physiology; the second anatomy, physiology, and materia medica with pharmacy. Those who have passed the first examination for the R.C.P. and the R.C.S. double qualifications are admitted to this on passing an extra examination in chemistry and botany. The subjects for the third examination are medicine, surgery, pathology, therapeutics, midwifery and diseases of women and children, medical jurisprudence, and public health. A four years' curriculum is necessary for this degree, but only one of them need be spent at the University College of Medicine, Newcastle-on-Tyne. The B.S. degree is obtained after a slight additional operative test. These degrees are easily obtained, and especially useful to London students who wish to combine the advantages of a degree with short residence out of London, and as much benefit of the London hospitals as is possible.

**Scottish Degrees.**—The University of Edinburgh boasts of having the largest medical school in the world, over 600 students annually attending the classes there. It confers the degrees M.B. and C.M. on all who pass the first, second, and final professional examinations, the subjects being (1) chemistry, botany, and natural history; (2) anatomy, institutes of medicine, materia medica (including practical pharmacy), and pathology; (3) surgery, practice of medicine, midwifery, and medical jurisprudence; clinically, on medicine and on surgery in a hospital. The course of study extends over four years, and it includes a course of not less than fifty hours' instruction in the class of practical materia medica in the university, or a similar class (recognised) elsewhere. In place of this the student may show "that he has been engaged by apprenticeship for not less than two years with a registered medical practitioner, or a member of the Pharmaceutical Society of Great Britain, or a member of the Pharmaceutical Society of Ireland, or a pharmaceutical chemist, or chemist and druggist, registered under the provisions of the Act for Regulating the Qualifications of Pharmaceutical Chemists, 1852, the Pharmacy Act, 1868, or the Pharmacy Act (Ireland), 1875, in the *bona fide* compounding and dispensing of drugs, and the preparation of their medicinal and other preparations under his superintendence." It will be noticed that the university is under the impression, having taken the Act of Parliament as their guide, that there are registered chemists and druggists in Ireland. The university is very liberal in recognising lectures elsewhere, so that students of medicine in the London schools, for example, and in the school of the College of Surgeons in Dublin, can obtain there two *anni medici* out of the four required for the Edinburgh degrees of medicine.

At the Glasgow University the regulations for graduation are very similar to those in Edinburgh, but there is this difference, that one of the examinations is divided into two, thus making it easier for the student. Glasgow has the advantage, too, of not having so many students, so that the clinical practice in the infirmaries is much more favourable than in Edinburgh, which happens to be one of the healthiest places in the kingdom, and does not produce enough sick cases for the students. The curriculum and examinations of the Aberdeen University are also very similar to those of Edinburgh. All these universities give instruction and grant degrees or diplomas in sanitary science or public health. The St. Andrews University does little in medicine, and the only degree which is sought after is M.D., which is conferred on medical practitioners above 40 years of age on passing an examination in materia medica and general therapeutics, medical jurisprudence, practice of medicine and pathology, surgery, midwifery, and diseases of women and children. Only a limited number are admitted, and all must be highly spoken of by their *confreres*.

The cost of education at these universities may be taken as indicative of what it is elsewhere. The minimum in Edinburgh (class and examination fees) amounts to 115*l.* for the four years, and a graduate estimates the "extras" (books, instruments, &c.) for us at about 50*l.* Aberdeen is about 25*l.* cheaper, and Glasgow is between. A fair idea may

be obtained of the cost in London by adding to the fees of the medical schools undernoted the examination fees of the qualifying bodies, and the Edinburgh "extras" may be taken as a fair estimate. We need not enter into the cost of living—that varies according to the individual, and no medical student can be happy and comfortable with less than 80*l.* a year to live upon.

**Irish Degrees** are obtainable from the University of Dublin (Trinity College), and from the Royal University of Ireland. In addition to M.B., M.D., B.S., and M.S., both universities confer degrees and diplomas in obstetric science, and the latter a diploma in sanitary science. The examinations for M.B. more resemble those of Durham than the corresponding examinations in the London University. The diplomas are granted after examination in fewer subjects than are required for the degree, while the diploma in sanitary science of the Royal University is conferred on graduates only after an examination in physics, climatology, chemistry, geology, sanitary engineering, hygiene, sanitary law, and vital statistics.

#### MEDICAL SCHOOLS.

The following is a list of the schools in the metropolis and in the provinces whose courses of instruction are recognised by the various qualifying bodies, together with the fees and the annual value of the scholarships where ascertainable:—

**Aberdeen University.**—Fees, 84*l.*; scholarships, 700*l.*

**Anderson's College, Glasgow.**—Lectures and hospital, for triple qualification, 48*l.*

**Bristol Medical School.**—Composition fee, 63*l.* for the college, and for hospital, 36*l.* 15*s.* Scholarships, over 200*l.*

**Carmichael College of Medicine and Surgery, Aungier Street, Dublin.**—Lectures for the Royal College of Surgeons, Ireland, 58*l.* 5*s.* 6*d.* Evening lectures on all subjects held. Scholarships, 100*l.*

**Catholic University of Ireland: School of Medicine, Cecilia Street, Dame Street, Dublin.**—Perpetual fee for lectures, 56*l.* 17*s.* 6*d.*

**Charing Cross Hospital.**—Fees for matriculated students (students who enter for their whole course at the hospital), 94*l.* 10*s.*, or 105*l.* in instalments. Scholarships, 245*l.*

**Dr. Steeven's Hospital and Medical College, Dublin.**—Composition fee for the medical school, 56*l.* 3*s.* 6*d.*; fee for hospital, 12*l.* 12*s.* for nine months.

**Guy's Hospital, St. Thomas's Street, Borough, S.E.**—Fee, 131*l.* 5*s.*, or 137*l.* 10*s.* in instalments. Scholarships, 585*l.*

**King's College, Strand, London, W.C.**—Medical department. Fee, 126*l.* 11*s.* 6*d.*, or 138*l.* in instalments. Scholarships, about 650*l.*

**Leeds School of Medicine.**—Lectures, 63*l.*; Infirmary, 42*l.* Scholarships, 100 guineas.

**London Hospital, Mile End, E.**—Fees, 90 guineas in advance, or 100 guineas in instalments. Scholarships, 400*l.*

**London School of Medicine for Women, 30 Handel Street, Brunswick Square, W.C.**—Lectures and hospital practice, 105*l.*, or 115*l.* in instalments. Scholarships, about 500*l.*

**Middlesex Hospital Medical School.**—Composition fee, 100*l.*, or 110*l.* in instalments. Scholarships, 160*l.*

**Owens College, Manchester.**—Lectures, 63*l.*; hospital, 44*l.* Scholarships, about 350*l.*

**Queen's College, Birmingham**—Associated with the Mason Science College. Composition fee, 105*l.* Scholarships, over 100*l.*

**Queen's College, Belfast.**—Scholarships, 200*l.*

**Queen's College, Cork.**—Lectures and hospital about 47*l.* Scholarships, 240*l.*

**Queen's College, Galway.**—Minimum fee for the degree of M.D., 39*l.* 5*s.* No hospital practice. Scholarships, 280*l.*

**School of Medicine, Edinburgh.**—For triple qualification, 100*l.*, including examination fee.



School of Surgery, Ireland.—Lectures, 63*l.*; hospital, 37*l.* 16*s.*

Sheffield School of Medicine.—Lectures, 45*l.* Hospital fee, 36*l.* 15*s.*

St. Bartholomew's Hospital, West Smithfield, E.C.—Fees for perpetual attendance on lectures and hospital practice, 133*l.* 12*s.*, or 131*l.* 5*s.* in advance. Scholarships, 625*l.*

St. George's Hospital, Hyde Park Corner, S.W.—Fee for the whole course, 125*l.*, or 130*l.* in instalments. Scholarships, 650*l.*

St. Mary's Hospital, Cambridge Place, Paddington, W.—Fee, 100*l.*, or 105*l.* in instalments. Scholarships, 500*l.*

St. Thomas's Hospital Medical School, Albert Embankment, Westminster Bridge.—Perpetual fee, 125 guineas; in instalments, 145*l.* Scholarships, 500*l.*

The Glasgow Royal Infirmary.—Fees for the whole course, 43*l.*

The West London Hospital, Hammersmith.—The fee for the complete course, including one year's hospital practice, is 26*l.* 5*s.*

University College Hospital, Gower Street, London.—Composition fee, 120 guineas, or 125 guineas in instalments. Scholarships, 440*l.*

University College, Liverpool.—Hospital fee, 42*l.*; lectures, 57*l.* 15*s.* Scholarships, about 300*l.*

University of Dublin School of Physic.—Fees, for obtaining degrees of M.B., B.Ch., and Master of Obstetric Science, are—Lectures, 63*l.* 15*s.* 6*d.*; hospitals, 44*l.* 2*s.*; degrees, 31*l.* Total, 133*l.* 17*s.* 6*d.* Scholarships, 170*l.*

University of Durham College of Medicine, Newcastle-on-Tyne.—Lectures, 60 guineas, 75 guineas in instalments; hospital, 32*l.* 11*s.* Scholarships, about 200*l.*

University of Edinburgh Medical School.—Fees, 115*l.* Numerous valuable scholarships are open for competition.

University of Glasgow Medical School.—Total minimum expenses for M.B. and C.M., 90*l.* Scholarships, over 2,000*l.*

Westminster Hospital.—Fee, 105*l.*, or 120*l.* in instalments. Scholarships, 400*l.*

#### MISCELLANEA.

*Homœopathic Medicine.*—There is something in it. The small doses were pooh-poohed at first; now we allopaths find them useful. Many of the medicines were ignored, but at present we have a number of them on our heavily-laden shelves. It is of the medicines only and the manner in which they are administered that we can judge; so far, therefore, if homœopathy has made no advancement as a legitimate system of practising medicine—and that can hardly be admitted—allopathy has made decided encroachments on homœopathy. 'Tis a pity that some robust allopaths do not mix with their potentised brethren and ascertain for themselves whether the Hahnemannian doctrine as modernised is scientific or arrant nonsense. This they can do by attending the London Homœopathic Hospital, Great Ormond Street, Bloomsbury, which provides a course of lectures on homœopathic practice, intended for qualified medical men as well as students. Composition fee for the entire course, 10*l.* 10*s.*, or subjects may be taken separately.

*M.D. Brussels.*—This is a degree sought after by many English students, who simply have taken the diploma of one or other of the colleges. Residence is not necessary, and the degree is conferred on any practitioner, native or foreign, provided with proper medical and surgical qualifications, who has gone through a full curriculum, and who can pass a certain examination or series of examinations. The first examination is in therapeutics, pathology, and anatomy; the second, in surgery, midwifery, hygiene, and medical jurisprudence; and the third is a practical examination at the hospital, including some operative work. The whole of the examinations may be got through in a week, and a knowledge of French is not essential, as interpreters are provided.

It is said that the examinations are very satisfactorily conducted. The fees amount in all to 540 francs (21*l.* 12*s.*).

*Early Doctors.*—Medicine is a good outlet for the energy of women and for the employment of many of the sex who find it necessary to make a living. As medical advisers for women and children it must be said that lady doctors are gradually growing in favour, and now that several licensing bodies in the United Kingdom have opened their portals to the sex it will not, ere long, be such an odd thing for ladies to enter upon the practice of medicine. The qualifying bodies which admit women to their examinations are:—

Apothecaries' Society, London, for the licence.

Royal Colleges of Physicians and Surgeons, Edinburgh, and Faculty of Physicians and Surgeons, Glasgow, for the triple qualification.

Royal Colleges of Physicians and Surgeons, Ireland, conjoint diploma.

Royal Colleges of Surgeons, Ireland, fellowship.

London University, medical and surgical degrees.

Royal University of Ireland, medical and surgical degrees.

At present women obtain their professional education at special schools, viz, the London School of Medicine for Women, 30 Handel Street, Brunswick Square, W.C., where there are about eighty students; and at the School of Medicine for Women, Surgeon's Square, Edinburgh, which has about twenty students. The students of both schools have clinical instruction in public hospitals, and their teachers are competent and well-known specialists. Full particulars regarding the curriculum may be obtained from the respective secretaries at the above address.

*In the Services.*—Many young doctors, immediately after completing their collegiate career, take a short "coach" for the army, navy, or Indian medical services, admission into which is obtained only by competitive examination. For the army and India the subjects in which the candidates are examined are anatomy and physiology, surgery, medicine, including therapeutics and the diseases of women and children, chemistry and pharmacy, and a practical knowledge of drugs. The candidate's success depends upon his proficiency in these subjects, but he may improve his position in the list by taking certain voluntary subjects, amongst which are French, German, botany, with special reference to *materia medica*, &c. Successful candidates enter the army medical school at Netley, where they receive 8*s.* per day, and study the subjects specially suitable for the services. The preliminary conditions for the navy are much similar.

The remuneration of an army surgeon begins at 200*l.* a year, but as he advances in rank and length of service it increases, the highest pay, that of surgeon-general, being 2*l.* 15*s.* per day, with 2*l.* per day on retirement. In the navy the pay is practically the same. In the Indian Medical Service the pay begins at 286 rupees 10 annas per month, increasing to 2,700 rupees for the surgeon-general in Bengal. After seventeen years' service the officer is entitled to a retiring pension of 292*l.* per annum, increasing to 700*l.* for thirty years' service. It is this which tempts many young men to join the Indian Medical Service. They think that when they reach the age of 45 they will come home vigorous and with a snug income, but by the time the home-coming arrives the doctor is in a fit condition to be doctored.

#### SCIENTIFIC.

IN this article we shall confine ourselves more particularly to chemistry, as that is the science, with the correlated physical subjects, which is most largely followed professionally, or is likely to be, by those whom we address. The demand for men who have a training in science grows apace. There are few industries of modern times which do not require some chemical knowledge, but unfortunately the demand is not large for experts—that is, men who have a thorough training in chemical and physical science combined with knowledge of some special department, such as dyeing, soap-making, and the like. It is generally the case that instead of situations existing for men, the men create the situations by their own perseverance in the pursuit of science, whereby they become better able to develop the branch of work in which they are engaged.

This country is now well supplied with scientific schools and colleges, and bodies which grant degrees or titles in



nce, or otherwise foster its development. At the head of  
se we may place the

# VERNMENT DEPARTMENT OF SCIENCE AND ART OF THE COMMITTEE OF COUNCIL ON EDUCATION.

This department has done admirable work in fostering  
ntific education amongst the masses, and this it does by  
ment of grants to the teachers of pupils who pass satis-  
ory examinations in either of the following subjects:—

Practical plane and solid geometry, May 18, 6 to 10 P.M.  
Machine construction and drawing, May 11, 6 to 10 P.M.  
Building construction, May 11, 6 to 10 P.M.  
Naval architecture, May 11, 6 to 10 P.M.  
Mathematics, May 13 (stages 6 to 7), 7 to 10 P.M.; stages 4 to 5, May 21,  
7 to 10 P.M.; stages 1 to 3, May 16, 7 to 10.30 P.M.  
Theoretical mechanics, May 8, 7 to 10 P.M.  
Applied mechanics, May 9, 7 to 10 P.M.  
Sound, light, and heat, May 17, 7 to 10 P.M.  
Magnetism and electricity, May 15, 7 to 10 P.M.  
Inorganic chemistry (theoretical), May 23, 7 to 10 P.M.  
Inorganic chemistry (practical), elementary, May 25, 6 to 9.30 P.M.  
Organic chemistry (theoretical), May 31, 7 to 10 P.M.; advanced and  
honours, June 1, 2.30 to 10.30 P.M.  
Organic chemistry (practical), May 28, 2.30 to 10.30 P.M.  
Geology, May 20, 7 to 10 P.M.  
Mineralogy, May 30, 7 to 10 P.M.  
Animal physiology, May 10, 7 to 10 P.M.  
Botany, May 29, 7 to 10 P.M.  
Biology, including animal and vegetable morphology and physiology,  
May 22, 7 to 10 P.M.  
Principles of mining, May 13, 7 to 10 P.M.  
Metallurgy (theoretical), May 22, 7 to 10 P.M.  
Metallurgy (practical), May 27, 2 to 10 P.M.  
Navigation, May 20, 7 to 10 P.M.  
Nautical astronomy, May 30, 7 to 10 P.M.  
Steam, May 31, 7 to 10 P.M.  
Physiography, May 14, 7 to 10 P.M.  
Principles of agriculture, May 13, 7 to 10 P.M.  
Hygiene, May 21, 7 to 10 P.M.

In all these subjects instruction may be had at evening  
ses in most towns, the session generally beginning about  
first week in October, and continuing until the week in  
ch the examination is held, the dates for 1889 being those  
re noted. The class fees are generally low, viz., 5s. to  
0 for the first class, and 2s. 6d. for each other class. The  
struction in each subject is given in three stages, elemen-  
ary, advanced, and honours, first and second class certificates  
eg awarded in each. One stage only can be taken in any  
year. The examinations are open to students who have  
attended a recognised science school on payment of  
sch. for each subject. Certificates are awarded to all who  
a, book or instrumental prizes being given to those who  
a first class in the advanced stage, and bronze medals to  
ne who take first-class honours. Pupils who have shown  
exceptional proficiency may compete for the following:—

Royal Exhibition, which entitles the holder to free  
mission to lectures and laboratories, and to instruction  
ing the course for the Associateship, about three years,  
the Normal School of Science and Royal School of Mines,  
don, or the Royal College of Science, Dublin, with a  
aintenance allowance of 50l. a year. Seven of these are  
arded annually, four tenable at the former institution, and  
e at the latter.

National Scholarship, which entitles the holder to the  
educational facilities, with a maintenance allowance of  
0 a week for the session of about forty weeks each year,  
and third-class railway fare for one journey to and fro, each  
erson, between the home of the candidate and London or  
ublin, as the case may be. Twelve of these are awarded  
nually, to the industrial classes only.

Free Studentship, entitling the holder to the same educa-  
tional facilities, but not to any maintenance or travelling  
allowance. Six of these are awarded annually.

Joseph Whitworth's exhibitions and scholarships are  
awarded in competition at the May examinations, to  
one engaged in mechanical engineering only. These are of  
annual value of 200l., 150l., and 100l., and are eagerly  
contested for. A prospectus regarding them (price 3d.) may  
be obtained from the Secretary to the Science and Art  
Department.

## ENDOWED SCIENCE SCHOOLS.

There are three schools subsidised by Government, two in  
London and one in Dublin. The education provided at  
these is the best possible, all the professors being men of  
high attainments, and their assistants are also men who  
have made their mark.

*The Normal School of Science* at South Kensington is sup-  
ported by the State to supply systematic instruction in the  
various branches of physical science to students of all  
classes. The school is primarily intended for the instruction  
of teachers, and of students of the industrial classes selected  
by competition. Other students are admitted so far as there  
may be accommodation for them. The instruction in the  
school is arranged in such a manner as to give the students  
a thorough training in the general principles of science,  
followed by advanced instruction in one or more special  
branches of science. The fees are high, so as to avoid com-  
petition with other schools, yet the number of applicants  
for admission is largely in excess of the accommodation  
provided. About 120l. is required for a three years' course  
of instruction (the period required for the associateship of  
either school). The associateship of the Normal School is  
given in one or more of the following divisions:—Mechanics,  
physics, chemistry, biology, geology, and agriculture.

*The Royal School of Mines* is affiliated to the Normal  
School. Students entering for the associateship of the  
School of Mines obtain their general scientific training in the  
Normal School. The associateship of this school is only  
given in metallurgy and mining. We may explain regard-  
ing these associateships, which are exceedingly valuable as  
indicating not only the ability but the training of the holder,  
that the first year's study for all the eight divisions is the  
same, viz., chemistry, physics, the elements of astronomy,  
mathematics, and freehand drawing. In the second year  
there is a parting—thus a student in chemistry or metallurgy  
takes mechanics, mechanical drawing, and elementary  
geology and mineralogy; while the student of agriculture  
takes elementary biology and elementary geology and  
mineralogy. All continue to take instruction in mathematics  
and in geometrical drawing. In the third year the student  
of chemistry studies chemistry alone; the student of metal-  
lurgy devotes himself to metallurgy and assaying, while the  
student of agriculture is engaged upon mechanics, the  
principles of agriculture, and agricultural chemistry.

*Royal College of Science, Dublin.*—This institution sup-  
plies a complete course of instruction in science applicable  
to the industrial arts, especially those which may be classed  
broadly under the heads of mining, engineering, and manu-  
factures, and is also intended, like the South Kensington  
schools, to aid in the instruction of teachers for the local  
schools of science. Students may enter for the three years'  
curriculum for the diploma of associate of the college, or for  
a shorter period of study. The fees are 2l. for each course,  
or 10l. for all the courses of each year, with the exceptions of  
laboratory practice and drawing. The fees for laboratory  
practice are: Chemistry, 12l. per session; physics, 6l. per  
session; and biology, 2l. each term.

*The City and Guilds of London Institute.*—Closely akin  
to the South Kensington scheme is that organisation which,  
through the co-operation and liberality of the City and Guilds  
of London, was some years ago founded for the advancement  
of technical education. The institute has founded three  
schools in the metropolis, whereat sound scientific education  
may be obtained, and it has also arranged a series of  
technological examinations in about three dozen subjects,  
which examinations are held throughout the country  
at centres, much after the style of the South Kensington  
examinations. Amongst the subjects are the following:—  
Alkali and allied branches—salt manufacture; alkali  
manufacture; soap manufacture; brewing; spirit manu-  
facture; coal-tar distilling; sugar manufacture; oils, colours,  
and varnishes, manufactures of; oils and fats, including  
candle manufacture; gas manufacture; dyeing; bleaching  
and printing; photography; electro-metallurgy; ores, raising  
and preparation of; electrical engineering.

These subjects are taught by registered teachers throughout  
the country. Their names will be found in the "Programme  
of Technological Examinations" issued by the institute.  
There are two grades of these examinations, *ordinary* and  
*honours*. In the former one silver and four bronze medals



with 9*l*. in prizes are awarded to the best five competitors, and in the latter a silver and a bronze medal with 5*l*. added to each are awarded. The examinations are held in the month of May of each year. Full particulars with the questions given in last year's examinations will be found in the programme. What the institute preaches in its examinations it endeavours to practise in its schools, thus at the *Technical College, Finsbury*, there are five departments:—(1) Mechanical engineering and applied mathematics; (2) electrical engineering and applied physics; (3) industrial and technical chemistry; (4) applied art; (5) the building trades.

Students are admitted who are 14 years of age or more, and before admission they must show by examination a fair acquaintance with English and mathematics, the examination in the latter subject embracing arithmetic, algebra, including simple equations and problems involving simple equations, and geometry (second book of Euclid). There are day and evening classes. The former are for students who desire a two or three years' course of systematic technical education, or such as is necessary to fit them for work in any industry requiring scientific and technical knowledge, while the evening classes are intended for those already engaged in the arts, but who desire to supplement their knowledge.

*Fees*.—Day students, 9*l*. for the session in advance, or 10*l*. in instalments. There are several scholarships, varying from 20*l*. to 30*l*. each. At the evening classes the fees are exceedingly moderate. As a mere example we may say that six hours' work in the chemical laboratory per week costs only 15*s*. per session of six months.

The *Central Institution*, Exhibition Road, S.W., is more especially intended for the instruction of those who wish to become (1) technical teachers; (2) mechanical, civil, electrical, and chemical engineers; (3) principals, superintendents, and managers of chemical and other manufacturing works. The education provided is of a high character. The instruction for all students taking a complete course comprises lectures on mathematics, engineering, physics, and chemistry; practical work in the mechanical, engineering, physical, and chemical laboratories, in the drawing office and workshops, and lessons in French or German. The fees for the complete course are 25*l*. per annum in advance, or 26*l*. in instalments. The annual value of the scholarships is over 215*l*. Students are under certain conditions admitted to partial courses of instruction. Students (who must be at least 14 years of age) must pass an entrance examination, which embraces pure and applied mathematics, mechanical drawing, physics, and French or German. The session commences on October 2, 1888. In addition to the ordinary courses of instruction, occasional series of lectures in special subjects are given, particulars of which are advertised as they occur.

The third school of the institute is the *South London Technical Art School*, 122 Kennington Park Road, which is devoted to the teaching of modelling, design, wood engraving, china painting, life classes (drawing and painting), house decoration, and upholsterer's cutting.

#### UNIVERSITY COLLEGE, LONDON.

This institution was founded for the purpose of doing what the University of London failed to do, viz., instructing students in those branches of knowledge for which the London University grants degrees. It is one of the best institutions in the kingdom for obtaining a sound scientific education, and is especially serviceable to those who desire to prepare for the degrees of the London University. In addition to lectures by such men as Prof. W. Ramsay, F.R.S. (chemistry), and Prof. G. Carey Foster, B.A., F.R.S. (chemical physics), practical instruction is given in well-equipped laboratories by well-qualified demonstrators. The college has two sessions—*winter*, beginning October 1 and terminating March 20, 1889; *summer*, beginning May 1, 1889, and ending July 19. The fees are moderate, and there are a number of valuable scholarships and prizes. For full particulars address, "The Secretary, University College, London."

#### KING'S COLLEGE, LONDON.

This institution was founded for a similar purpose to University College. In addition to the day classes there are lectures in the evening, the subjects treated being mathematics, mechanics, physiology, botany, experimental

and applied physics, mineralogy and geology, comparative anatomy and practical biology, metallurgy, &c. Fees, 10*s*. 6*d*. to 21*s*. per term. The day classes afford a complete course of instruction, extending over three years, in engineering and applied science.

#### OTHER METROPOLITAN SCHOOLS.

At the *Polytechnic Institute*, 369 Regent's Street, W., there are evening classes at low fees, in which the more important branches of science are taught. Full particulars may be obtained from the secretary.

*Birkbeck Literary and Scientific Institute*, Bream's Buildings, Chancery Lane.—Here instruction is given in the evening in chemistry (organic and inorganic), physics and similar sciences. Courses are conducted adapted for the elementary, advanced, and honours examinations of the Science and Art Department, and for the pass and honours examinations of the second B.Sc. The fees are low.

#### PROVINCIAL EDUCATION ESTABLISHMENTS.

##### Aberystwith.

The *University College of Wales*, now in its seventeenth session, imparts sound education in the arts and sciences. In chemistry there are four courses of lectures for students of different degrees of advancement. Laboratory instruction is also given, and special courses will be arranged for any students who intend to follow medicine or pharmacy, and every facility will be given to those desirous of studying more especially some one particular branch of applied chemistry. The arrangements in other subjects are similar to the foregoing. Special attention is paid to preparing students for the London University degrees, and on students of the college, who successfully pass their examinations according to the scheme published in the college calendar, the style of "Associate of the University College of Wales" is conferred. The college is recognised by the Edinburgh University as one where instruction for B.Sc. Edin. may be obtained during two years of the three years' curriculum. The fees of the college are exceptionally low, viz., 10*l*. per session. There are twenty-six scholarships, of the aggregate value of 330*l*., open to male and female candidates.

##### Birmingham.

The *Mason Science College* was founded by Sir Josiah Mason, February 23, 1875, and was opened October 1, 1880. Eight scholarships are awarded, their aggregate value being 230*l*. All the classes of the college are open to persons of both sexes over 16 years of age, those under that age having first to pass a preliminary examination. Complete courses of instruction are given in the subjects for degrees of the London University, and in chemistry for the associateship of the Institute of Chemistry. The fees vary; thus, for the elementary courses in chemistry 2*l*. 2*s*. is the fee, while the general course (100 lectures) is 5*l*. 5*s*. For laboratory work 7 guineas cover the whole day's work throughout the summer term, and so on in proportion. The title of Associate of the Mason College is conferred upon all who have been systematic students of the college during three sessions, and have passed successfully through the prescribed courses of study laid down in the several branches of physical, biological, and technological science taught within the college. Several courses of evening lectures are arranged during the winter and spring terms of each session. Syllabuses, containing complete information, may be obtained from Cornish Bros., New Street, Birmingham. Price 6*d*.; by post, 8*d*.

##### Bristol.

At the *University College* in this city chemistry, mathematics, mechanics, experimental physics, electro-technics, engineering, botany, and geology are taught, both during the day and in evening classes. The fees in the latter are 10*s*. each subject per term.

##### Cork.

*Queen's College*.—In the faculty of arts of this college it is open to students to proceed to the degrees of B.A., M.A., D.Lit., and D.Sc. in the Royal University of Ireland, and of B.A., M.A., D.Lit., B.Sc., and D.Sc. in the University of London. Education is provided in all the branches of knowledge required for these degrees. The fees are moderate.



*Dundee, N.B.*

*University College* is open to persons of both sexes above 16 years of age. There are seven chairs in the college, science taking the larger share of them. The chemistry lectures are suitable for the degrees of the London University, and will also satisfy the requirements of students in pharmacy, and of candidates for the associateship of the Institute of Chemistry. Fee 2l. 2s. per course. Practical work, six hours per week, 3l. per session. Recently a laboratory has been added for the purpose of practically teaching the chemistry of dyeing and bleaching, regarding which lectures are also given. The lectures on botany (with practical work) will be given during the summer term. Fee for lectures and practical work, 2l. 2s. Evening classes are held. There are several scholarships.

*Glasgow.*

*Anderson's College* affords instruction (day and evening classes) in physics, chemistry, applied mechanics, mechanical drawing, and mathematics in the faculty of arts. Courses of lectures on technical chemistry are given in connection with the City and Guilds of London Institute for the advancement of technical education. The college generally succeeds in turning out one or two Whitworth scholars every year. It is very popular in Glasgow, is well appointed, and its professional staff is composed of men of eminence in the scientific world. The fees are low.

*Leeds.*

*Yorkshire College* is one of the three which form the Victoria University, so that its courses of instruction qualify for the degrees of that university. Apart from the ordinary day classes there is provided an excellent series of evening classes in scientific and other subjects, including such as photographic manipulation, elementary biology, physiology, physics, chemistry, and dyeing. The fees are from 5s. to 10s. 4d. per class. More complete courses of instruction are given in these subjects during the day, special attention being given to ensure that the instruction fits in well with the technical requirements of the industries of the district.

*Liverpool.*

Like the Yorkshire College, the University College of Liverpool is affiliated to the Victoria University, and has a complete staff of teachers. The chemical laboratories are of recent construction, and are well fitted for ordinary experiment and research work. Dr. J. Campbell Brown, the professor, has four assistants. The lectures are arranged in courses to suit the requirements of different branches, but the elementary course is common to all. The fees are moderate. There are evening classes, amongst which are chemistry and physics.

*Manchester.*

Owens College, the largest of the three constituting the Victoria University, is in every respect a model modern university. All the departments of the science faculty are complete, and supervised by able teachers. The courses of study meet the requirements for the degrees of the Victoria and London Universities, and of the Universities of Cambridge and Oxford.

*Newcastle-upon-Tyne.*

The Durham College of Science is the only channel through which science degrees of the University of Durham can be obtained. Matriculated students who purpose taking a degree in science in the university are expected to attend a definite course of instruction extending over two years, and embracing mathematics and mechanics, physics, chemistry, geology, natural history, French, German, and mechanical drawing, and to pass periodic examinations in the subjects of their lecture. Students who have not matriculated may attend any course of lectures or laboratory instruction.

*Nottingham.*

The University College is affiliated with the Oxford and Cambridge Universities, so that the curriculum of the college qualifies for the degrees of the universities. For this purpose students must attend for three sessions, receive at least four hours' weekly tuition in the college, and pass the

examinations connected with the institution, as well as two examinations conducted by university examiners, viz., the first examination in arithmetic, Euclid I.-III., algebra to quadratics, and one language; the second examination, either in languages, mathematics, natural science, or English. The instruction of the college qualifies for the science degrees of the London University.

*Sheffield.*

*Firth College and Sheffield Mechanical School.*—Firth College was founded in 1879 by Mr. Mark Firth. Its aim is to provide for the people of Sheffield and district the means of higher literary and scientific education by university methods of teaching. Its doors are open to all, without distinction of sex or class, who are over 17 years of age, but the limit of age may be lowered in exceptional cases, such persons requiring to pass a preliminary examination. The college is affiliated to the Universities of Oxford and Cambridge, so that what has been said of Nottingham applies here also. Special courses of instruction are provided for some of the examinations of the University of London, and for the engineering and metallurgical diplomas of the Technical School. The sciences taught are mathematics, physics, chemistry, biology, and botany, both in day and evening classes. The college is well endowed, consequently the fees are moderate.

*Universities.*

At all the universities in the kingdom instruction is also given in scientific subjects, and degrees are conferred in science at the Universities of London, Edinburgh, Glasgow, St. Andrews, Durham, and the Victoria University.

DEGREES AND TITLES IN SCIENCE.

Professor Tilden, in addressing the chemical section of the British Association at Bath, said, regarding the curriculum in chemistry, that "Three years has hitherto been regarded as the normal period for study. The question arises, Can a young man, previously well educated, expect to become an accomplished chemist, competent to apply his knowledge usefully, by giving the whole of his time to study during three years? I believe not. . . . My estimate that a well-educated and intelligent young man will now require five years for the study of chemistry and accessory subjects before he is likely to be of much use will not appear extravagant. . . . I believe the Institute of Chemistry would greatly promote the interests of the profession if it would impose upon candidates for the associateship not only a three years' course of training with an examination in practical chemistry at the end, but a severe examination in mathematics, in the English, French, and German languages, and perhaps drawing before matriculation or registration." An equally eminent professor also remarked some time ago that "what chiefly impeded progress in chemistry in this country was the miserable system of examination now in force. There ought to be less grasping after degrees such as B.Sc. and other miserable combinations of letters, the acquirement of which left too little time for the prosecution of research."

Apparently the authorities are not quite agreed as to what a student of chemistry should do, but it is perfectly clear that if a youth of sixteen has not a competent knowledge of mathematics and the languages which Prof. Tilden mentions, he should dispose of these before he enters seriously upon his chemical studies. We cannot overrate the importance of a thorough scholastic education to the chemist. German may be said to be indispensable, as many of the most important researches are published in that language, while engineering is every year being regarded as a necessary accomplishment to the chemist, so that mathematics come in useful here as well as in the study of pure chemistry and physics. Prof. Tilden has referred to the

ASSOCIATESHIP OF THE INSTITUTE OF CHEMISTRY.

The value of this title has yet to be created. The Institute of Chemistry of Great Britain and Ireland was established October 2, 1877, to ensure that consulting and analytical chemists are duly qualified for the proper discharge of the duties they undertake by a thorough study of chemistry and allied branches of science, in their application to the arts, public health, agriculture, and technical industry. The members of the Institute are divided into two grades, having



the distinguishing ranks or degrees of fellow and associate respectively. It is from the ranks of the associates that fellows are recruited, and on paper everything regarding the Institute looks well. For example, the regulations in the case of associates require every applicant to submit to a stringent examination in practical chemistry, and to show to the satisfaction of the Council that he has passed through a course of three years' study of theoretical and analytical chemistry, physics, and elementary mathematics. An associate must be at least twenty-one years of age before admission, and is not eligible for the higher rank of fellow until he has been continuously engaged for three years in the study and practical work of applied chemistry, in a manner that shall be considered satisfactory by the Council.

It so happens, however, that most of the fellows have been admitted on account of their reputation and payment of a fee, and within the last year the doors of the Institute have been widened, so that many applicants for the associateship have been admitted on passing an examination in qualitative chemical analysis, the conditions regarding the three years' curriculum being suspended in their case. This action on the part of the council of the Institute has not assisted to raise the value of the titles which they confer; but henceforth, it is stated, the regulations will be rigidly adhered to. In course of time, therefore, the associateship will be a thing for which students will work, and at present most of the colleges provide special courses of instruction for it, extending over the three years, the curriculum being arranged as follows:—

*First Year.*—Elementary mathematics; elementary physics; elementary chemistry; French and German.

*Second Year.*—Special course of experiment in the physical laboratory. Chemistry.—General course of lectures on inorganic and organic chemistry; chemical laboratory (full time). French and German, if necessary.

*Third Year.*—Mineralogy, or geology, or technical chemistry; chemical laboratory (full time); special instruction in chemistry.

The examination for the Associateship (fee, 2*l.* 2*s.*) is conducted in London, Birmingham, Bristol, Dublin, Glasgow, and Manchester. Further particulars may be obtained from the secretary to the Institute, Somerset House Terrace, London, W.C.

#### BACHELORATE IN SCIENCE.

The student who requires something definite to work for cannot do better than make the attainment of the B.Sc. degree the aim of his labours. The London University degree is not only the most valued, but it is the most easily obtained, in so far as it does not compel the student to acquire his knowledge at any particular place or time. Candidates for the degree are required to pass the matriculation examination and two subsequent examinations. The subjects of the matriculation examination are: Latin, English, arithmetic, algebra, four books of Euclid, mechanics, *one* of the following languages: Greek, French, German, Sanskrit, Arabic; and either heat and light, magnetism and electricity, or chemistry. The examinations take place every January and June, the next being January 14, 1889, when it will be held in the following provincial centres, as well as in London:—

*Birmingham*—Queen's College.

*Cardiff*—University College.

*Glasgow*—The Training College, New City Road.

*Leeds*—The Yorkshire College.

*Portsmouth*—The Grammar School.

The examination of June, 1889, will be held at—

*Birmingham*—Queen's College.

*Edinburgh*—The Heriot-Watt College.

*Epsom*—The Royal Medical College.

*Leeds*—The Yorkshire College.

*Liverpool*—University College.

*Manchester*—The Owens College.

*Newcastle-on-Tyne*—The School of Science and Art.

*Nottingham*—University College.

*Sheffield*—Firth College.

The fee for the examination is 2*l.*, payable to the University, and in addition to this a fee, varying from 1*l.* to 2*l.*, is charged by the local authorities. The local fee is also

charged in regard to the intermediate examination which is also held at provincial centres. The fee for the latter examination is 5*l.*, and the subjects are:—For a pass or for honours, inorganic chemistry, including testing of substances containing one base and one acid, experimental physics, mathematics; and for a pass only, general biology with practical work. Candidates may also be examined for honours in botany and in zoology. The final examination takes place on the third Monday of October in each; fee, 5*l.* Candidates may now choose which subjects they will pass in, there being nine, viz.: Pure mathematics, mixed mathematics, experimental physics, chemistry, botany, zoology, animal physiology, physical geography and geology, and mental and moral science.

To give an idea of the nature of the examination, we may state that *Experimental Physics* includes the general physical laws, acoustics, heat, optics, magnetism, and electricity. In *Chemistry* the inorganic portion is treated more fully than in the intermediate examination, and organic chemistry is added, and extends as far as alkaloids, glucosides, and albuminoid bodies. The practical examination includes analysis of mixtures of not more than two salts, the detection of organic acids and bases, and qualitative analysis of common inorganic bases in combination with the chief mineral acids. To Major men who can master the subjects of the matriculation examination the acquirement of this degree should not be a matter of exceeding difficulty.

Two years after the time of his obtaining the B.Sc. degree the student may proceed to graduation as doctor of science. He must intimate to the University the subject in which he wishes to graduate, any one of the nine previously mentioned being selected. In this subject he is required to submit an original printed dissertation or thesis, treating scientifically some special department of the subject, embodying the result of independent research or showing evidence of his own work. If this dissertation is approved, a day is appointed upon which the candidate attends for examination, and is expected to be so fully conversant with the branch of science he professes as to be able, if required, to satisfy any test of his acquirements in that branch that it may be thought expedient to apply. We may add that females as well as males are admitted to the degrees of this university.

The *Victoria University* grants the degree of B.Sc. only, after a three years' curriculum in Owens College, Manchester, and University College, Liverpool. But if candidates pass the preliminary examination, comprising English language and history, pure mathematics, and any three of the following subjects—Latin, Greek, French, German, experimental mechanics, and chemistry, they need only study in the colleges for two years. The degree is obtainable in any one of five branches—mathematics, engineering, experimental, biological, and geological sciences. The total fees for the three years' curriculum amount to about 60*l.* The *University of Durham* confers the B.Sc. degree on very similar conditions, the training being obtained in the Durham College of Science, or other recognised school.

The *Scottish Universities* (Edinburgh, Glasgow, and St. Andrews) also grant the degree. The student must first pass a preliminary examination, then enter the university which he has decided to study at, go through the necessary curriculum, and pass the professional examinations. The *Edinburgh University* stipulates the attendance on science classes for the degree of B.Sc. must extend over three academic years, one of which must be spent at the Edinburgh University, and the other two either at it or at schools approved by it. The degree of D.Sc. may be taken *one* year after the B.Sc. The *University of Glasgow* grants the degree of B.Sc. only, and attendance at the college is compulsory. Several valuable scholarships are attached to this department. D.Sc. and B.Sc. are conferred by the *University of St. Andrews*. Attendance at the university, or a sister one, such as University College, Dundee, is essential.

#### DOCTOR OF PHILOSOPHY.

The degree of Ph.D. is conferred by all the German universities, but cannot be taken now, as it formerly could be obtained, by candidates in *absentia*. Candidates must go through a three years' course of study, and must do then some original work in the laboratory, generally occupying another year. An examination in chemistry, philosophy, and



on other subject (physics is generally taken by the chemical candidates) follows, and after that the candidate is called upon to defend the thesis which he has written narrating the result of his laboratory work. Lastly, he pays a formal fee of about 7*l.* 10*s.* and takes his degree. He is not required to spend the whole of his time at one university.

## DENTAL.

DENTISTRY is a growing profession, and a paying one. It is only since 1878 that the practice of this calling has been restricted by law; but the restriction simply amounts to the prevention of any persons assuming the title "Dental Surgeon," or otherwise implying that they are registered under the Dentists Act. Consequently, anyone may practise dentistry, so long as he does not assume the title; and it is a branch which is well adapted for cultivation by chemists, many of whom are on the dentists' register. To acquire the distinction now, however, it is necessary to go through a regular curriculum of training and professional study and pass certain examinations for the

### LICENCE IN DENTAL SURGERY.

This is granted by the Royal Colleges of Surgeons, London and Edinburgh, the Faculty of Physicians and Surgeons, Glasgow, and the Royal College of Surgeons in Ireland. If the student began his professional education before July 22, 1878, he is exempt from the preliminary examination in anatomy, which the General Medical Council require for students of medicine. The same examination, with similar regulations, applies to dental students. Those who have entered the profession since the above date must pass the examination and be registered as dental students. London students are recommended to take the matriculation of the University of London. Passing that examination will enable the student subsequently to present himself for a university degree, should he desire to do so. Scotch and Irish students should pass the preliminary examinations of the respective bodies which grant the dental diploma, although any other examination recognised by the General Medical Council is suitable. The student is then required, according to the regulations of the Medical Council, before he can obtain a diploma in dental surgery, "to produce certificates of having been engaged during four years in professional studies, and of having received three years' instruction in mechanical dentistry from a registered practitioner. One year's *bona-fide* apprenticeship with a registered dental practitioner, after being registered as a dental student, may be counted as one of the four years of professional study. The three years of instruction in mechanical dentistry, or any part of them, may be taken by the student either before or after his registration as a student; but no year of such mechanical instruction shall be counted as one of the four years of professional study unless taken after registration."

These regulations are somewhat ambiguous, but they simply mean that in addition to the ordinary apprenticeship of not less than three years, the student must spend two years in collegiate studies, viz., two winter and one summer seasons at a general hospital and medical school, and two years' attendance at a dental hospital and school. The general and the dental courses may run concurrently.

### ROYAL COLLEGE OF SURGEONS, ENGLAND.

The general or medical subjects required for the diploma of this board are those which are covered by the three professional examinations, viz.:—

*First Examination.*—Chemistry and chemical physics, materia medica and pharmacy, elementary anatomy, and elementary physiology. Fee, 10*l.* 10*s.*

*Second Examination.*—Anatomy and physiology, together or separately, not less than six months after the first examination. Fee, 10*l.* 10*s.*

*The Third or Final Examination.*—Medicine, including therapeutics, medical anatomy, and pathology; surgery, including surgical anatomy and pathology; and midwifery, and diseases peculiar to women. Questions on forensic medicine and public health will be included. Fee, 15*l.* 15*s.*

A candidate may pass one subject at a time, or the whole.

The following is the order in which the lectures, &c., may be attended each session for L.D.S.:—

*First Winter Session.*—Anatomy, dissections, physiology, chemistry, hospital practice, and surgical clinical lectures, dental anatomy, dental mechanics, dental hospital practice.

*First Summer Session.*—Practical chemistry, materia medica, dental surgery, dental hospital practice.

*Second Winter Session.*—Anatomy, dissections, medicine, surgery, hospital practice and surgical clinical lectures, dental anatomy, dental mechanics, metallurgy, dental hospital practice.

*Second Summer Session.*—Dental surgery, dental hospital practice.

*Scotch Diplomas.*—The requirements for these are practically the same as the foregoing, except that in dental anatomy, dental surgery, dental mechanics, and clinical surgery the period of study is shorter. In Edinburgh there are two examinations for the diploma with a year between the two, but in Glasgow there is only a day's interval between the two.

*Irish Diplomas.*—The requirements of the Royal College of Surgeons in Ireland for the dental diploma are similar to the English college. The student has to pass three professional examinations, and up to the second the examinations are similar both for the general and dental licence; only after this is passed are the special subjects taken up.

### SCHOOLS OF DENTISTRY.

**National Dental Hospital and College, 149 Great Portland Street, W.**—The winter session will commence at this school on Monday, October 1. Instruction is provided in all the dental subjects, but for the general subjects the student must go elsewhere. The total fee for dental lectures and hospital practice is 25*l.* 4*s.* Further particulars from Mr. T. Gaddes, L.D.S., Dean of the College, at the above address.

**The Dental Hospital of London, Leicester Square, W.**—Winter session commences on October 1. The subjects taught are the same as by the foregoing. Fee for two years' hospital practice required by the curriculum, including lectures, 31*l.* 10*s.* Mr. Morton Smale, M.R.C.S., will supply the calendar of the school.

**Birmingham Dental School, Dental Hospital, and Dental Department of Queen's College.** Fees: a composition fee of 60 guineas, payable in one or two sums, admits to the full curriculum required for the dental diploma (inclusive of the necessary hospital practice). If classes are taken out separately, 71*l.* 8*s.* For information apply to Mr. J. Humphreys, L.D.S., 27 Newhall Road, Birmingham.

**Owens College and the Victoria Dental Hospital, Manchester.**—Warden, Dr. Parsons Shaw. Fees for the general and dental lectures, together with the Infirmary and the Dental Hospital practice required for L.D.S. Eng., 73*l.* 2*s.*

**University College, Liverpool, and Liverpool Dental Hospital, Mount Pleasant.**—Registrar, Mr. Frederick Rose. Fees, 52*l.* 10*s.* for lectures and demonstrations (medical and special), and for hospital practice, 23*l.* 2*s.*, payable in two instalments if desired.

**Edinburgh Dental Hospital and School, Chambers Street, Edinburgh.**—Dean, Mr. Bowman Macleod, L.D.S., 16 George Square. Fees for two years' hospital practice, 15*l.* 15*s.*; for special classes, 9*l.* 15*s.*; for *all* subjects and examination fees for L.D.S. Edin., 75*l.* 12*s.*

**Glasgow Dental Hospital and School, 56 George Square, Glasgow.**—Dean, Mr. J. R. Brownlee, L.D.S. Eng., 220 West George Street, Glasgow. Fees: two years' hospital practice and special lectures, 25*l.* 4*s.*; general hospital practice and lectures in non-dental subjects, 28*l.* 7*s.* to 37*l.* 16*s.* Maximum total for L.D.S. (Edin. or Glasgow) including examination fees, 74*l.* 10*s.*

### PARTIAL INSTRUCTION

May be obtained at the following schools or hospitals, to the respective secretaries of which we advise students to apply for full particulars:—

**Bartholomew's Hospital, E.C.; Charing Cross Hospital, W.C.; Dental Dispensary and School, Octagon, Plymouth (Hon. Secretary, Mr. E. G. Bennett); Dental**



**Hospital, Bedford Circus, Exeter** (Hon. Secretary, Mr. H. B. Mason); **Dental Hospital of Ireland, York Street, Dublin** (Dean, Dr. Theodore Stack); **Guy's Hospital, Borough, S.E.**; **London Hospital, Mile End, E.**; **Middlesex Hospital, Berners Street, W.**; **St. George's Hospital, Grosvenor Place, S.W.**; **St. Mary's Hospital, Paddington, W.**; **St. Thomas's Hospital, Albert Embankment, S.E.**; **Westminster Hospital, Broad Sanctuary, S.W.**; **University College, Gower Street, W.C.**

#### D.D.S AND D.M.D.

American dentistry is admittedly far ahead of English so far as mechanical work is concerned. The "novelties" are mainly of American origin, so too are the doctorate degrees which some English dentists begin to sport, and have thereby got themselves into trouble, for it happens that the only registrable American degrees are those of the Universities of Harvard and Michigan. It is necessary in order to get these to go through a curriculum and examinations which are much akin to those for L.D.S. Eng., and the cost is about the same, 70*l*. Those who are already registered dentists, and who, therefore, undergo no risk in using D.D.S. of an unrecognised body, may journey to the States for a year's experience of American methods, and at the same time take the course of instruction at Pennsylvania College of Dental Surgery (fees, including everything, 50*l*.), or they may take the Baltimore D.D.S., which is the easiest to get and the cheapest (27*l*.). We strongly recommend the former college, however. The L.D.S. diploma of this country expedites graduation, so that it is possible to leave here and come back within a year with the D.D.S. at a cost of not less than 100*l*.

#### VETERINARY.

"HORSE DOCTORS" and "farriers," those men who, by years of empiric treatment, stumbled into something like expertness in the treatment of the diseases of animals, are rapidly becoming extinct, and their place is being filled by a class of educated men who, like those in the higher walks of pharmacy, claim to be "an integral part of the medical profession." As the "veterinary profession," the Members of the Royal College of Veterinary Surgeons can afford to stand by themselves.

This is a profession which many chemists and druggists, both in town and country districts, could qualify themselves to follow, and yet continue pharmacy in conjunction with it. It is of itself a lucrative calling, but we know of many cases in which the combination referred to has proved highly successful, and certain it is that a veterinarian who has pharmaceutical experience is always successful in his practice. In order to qualify as M.R.C.V.S. a Preliminary examination must be passed, followed by a curriculum of study extending over three sessions (three winter and three summer terms, or about two and a half years) and three professional examinations conducted by the examining board of the Royal College of Veterinary Surgeons, which sits in London, and periodically visits Edinburgh and Glasgow.

The Pharmaceutical Preliminary examination is accepted by the various colleges in lieu of their matriculation examination. If the student is not pharmaceutical, or does not hold any of the certificates which are accepted by the General Medical Council, he will be required to undergo an examination in general knowledge, of which the subjects are:—(1) Reading aloud; (2) writing from dictation; (3) English grammar, with parsing and composition; (4) arithmetic—the simple and compound rules, with vulgar and decimal fractions; (5) elementary English history and geography; (6) rudimentary Latin, French, or German (*one only*). Particulars as to the dates on which the examination will be held can be obtained from the college at which the candidate intends to study. Each college conducts its own examination and fixes the fees chargeable for the same.

#### PROFESSIONAL STUDIES AND EXAMINATIONS.

Lately there has been an alteration in the professional examinations, which has necessitated an alteration in the curriculum of study. Toxicology, pharmacy, and materia medica are not now included in the first professional examination, so that in the

*First Session*, theoretical and practical chemistry, botany, and elementary anatomy are the subjects of study. Chemistry includes physics and the inorganic, organic, and animal branches of the science, the latter embracing the laws of animal nutrition, the chemistry of food, &c. Practical chemistry extends to the detection of an unknown salt. Botany is comparatively elementary in character, and the same may be said of anatomy at this stage.

*First Examination.*—The subjects of this examination are chemistry, botany, and elementary anatomy (bones and ligaments). Candidates may enter for this, and are expected to, at the end of the first session.

*Second Session.*—The subjects which should be studied during this session are (1) anatomy, embracing lectures on the anatomy of the horse and other domesticated animals, anatomical demonstrations, and practical anatomy; (2) physiology, including systematic histology and functional physiology; and (3) practical physiology. It is customary, however, to begin two or more of the subjects for the final examination during this session, more especially practical pathology and materia medica, so as to give the student as much opportunity as possible during the last year of really practising veterinary surgery.

*Second Examination.*—The student who has been successful in the first examination may at the end of the second session enter for this one, of which the subjects are, anatomy, physiology, and histology.

*Third Session.*—The student, we suppose, has taken the classes in practical pathology and materia medica (including toxicology, pharmacy, and therapeutics) in the previous session. He now enters on the study of (1) veterinary medicine and surgery, and (2) comparative pathology, which embraces (a) the pathology, treatment, prevention, &c., of the Epizootic and general diseases of cattle, sheep, pigs, dogs, and other domestic animals; (b) veterinary obstetrics, with the diseases incidental to parturition; (c) the natural history and peculiarities of parasites, with the various affections to which they give rise.

*Third or Final Examination.*—This is the crucial test of the student's fitness to receive the diploma. He must now show that he is 21 years of age. The examination is in two parts:—

**Theoretical.**—In this section the candidate is examined on morbid anatomy, pathology, toxicology, materia medica, and the theory of veterinary medicine, surgery, and therapeutics (equine and comparative).

**Practical.**—If the candidate has passed the theoretical, he is admitted to this part of the examination. In this, each student is subjected to a clinical examination on live subjects (horses, cattle, and sheep, &c.), and in writing certificates of soundness, and prescriptions.

Having satisfied the examiners, the student becomes an M.R.C.V.S., and is qualified to practise and to be placed on the register of veterinary practitioners. They are thus rendered eligible for all civil and military appointments, as officers in the veterinary department of the army, inspectors to the Privy Council, or to local authorities, under the Contagious Diseases (Animals) Act, either in Great Britain or Ireland; and for similar veterinary appointments in the Colonies and the United States of America.

#### VETERINARY SCHOOLS.

There are only four veterinary schools in this country, three of them being in Scotland. The courses of instruction at all four qualify for the examinations.

##### THE ROYAL VETERINARY COLLEGE, *Great College Street, Camden Town, N.W.*

The winter sessional course of instruction will commence on Monday, October 1, when the introductory address will be delivered by Professor Brown, C.B., at 1 P.M. The college offers a scholarship, value 25*l*., for competition, as well as prizes. Mr. R. A. N. Powys is the secretary. Total fees, 45 guineas.

##### ROYAL (DICK'S) VETERINARY COLLEGE. *Clyde Street, Edinburgh.*

Founded by the late Professor Dick in 1823, and endowed by him at his decease in 1866. No other college is so privi-

aged. The college buildings have recently been enlarged, and are now second to none. The teaching staff is excellent. Principal, Mr. Thomas Walley. Fees, 41 guineas.

#### THE NEW VETERINARY COLLEGE.

*Leith Walk, Edinburgh.*

A gold medal, 20*l.*, or a cheque for that amount is presented by Principal Williams in April of each year to the student who has made the highest number of marks before the award of the Royal College of Veterinary Surgeons in its first and second examinations. Fees, 45 guineas.

#### GLASGOW VETERINARY COLLEGE.

*Buccleuch Street, Garnethill.*

Principal, Professor McCall. The course of study extends over two years and a half. Fee for perpetual ticket, 45 guineas.

#### ARMY VETERINARY DEPARTMENT.

Tharmy appointments are much sought after. Candidates must possess the diploma of the Royal College of Veterinary Surgeons, and are required to pass an examination before a board. If successful in this, the candidate is appointed a veterinary surgeon on probation for six months, at the expiration of which period, if his service has been satisfactory, he receives a commission as veterinary surgeon for a limited period of ten years' service. If his probationary period does not reflect credit upon him he is dismissed the service. The work of an army veterinary surgeon is light, and the pay comparatively good, viz.:—

Principal veterinary-surgeon (rank, colonel), 850*l.* a year, inclusive of all allowances. Inspecting veterinary-surgeon (rank, lieutenant-colonel), 25*s.* a day; after twenty years' service, 27*s.* a day; after thirty years' service, 30*s.* a day. Veterinary-surgeon of the first class (rank, lieutenant), 16*s.* a day; after five years' service (rank, captain), 18*s.* a day; after ten years' service (rank, major), 20*s.* a day; after thirty years' total service, 24*s.* a day.

### Personalities.

MR. W. E. BUSH, F.C.S., of the firm of W. J. Bush & Co., has been nominated chairman of the chemical jury for the Brussels Exhibition.

THE business formerly carried on at Staveley, Chesterfield, by Wharmby & Phillips will in future be carried on by Mr. J. Wharmby, wholesale chemist, Mansfield, Sutton-in-Ashfield, and Kirkby.

MR. BAILY, of Ethelbert Road, Margate, has opened a cafe at 3 The Parade, just opposite the harbour. The shop, though small, is unique and handsomely fitted. The designs were planned and carried out by Mr. E. Natali, of 207 Old Street, E.C.

THE Sheriff of Lichfield, Mr. J. J. Perkins, is a chemist and druggist. Last week he entertained a large company to breakfast, and, following an ancient custom, afterwards took them with him on his annual "ride" round the boundaries of the city.

MR. WALTER ASTEN, 118 New Street, Birmingham, asks us to correct the spelling of his name in our report of the British Pharmaceutical Conference. Mr. Asten contributed a paper on the "Minimum Size of Pills," and his name was given us (and in the Conference programme) as Mr. N. Austen.

MR. JOHN KAY, chemist, of Crewe, is about to proceed with his family to California. Mr. Kay has long been in business in the town, has identified himself with many public movements, and his departure has occasioned keen regret. The members of the Dramatic Society and of the Primitive Methodist Church at Crewe have presented addresses to Mr. Kay expressing regret at parting with him.

OL. LADY (to grocer): "My daughter is quite an invalid, sir, and wants some nice fresh eggs." Grocer: "Yes, ma'am." (To boy): "James, show this lady those invalid eggs."

### Trade Notes.

MESSRS. F. NEWBERRY & SONS intimate that they are prepared to supply their customers with medicine stamps in quantities over or under 1*l.* worth; but not fewer than a sheet of 1½*d.* or half a sheet of 3*d.* can be supplied.

MR. H. F. PARTRIDGE, who recently had his name removed from the Dentists' Register, is described in a circular regarding the South Kensington Ladies' Dental Institution, Sussex House, 43 Sussex Place, as "late Licentiate Dental Surgery, Royal College of Surgeons."

THE general aperient, which Dr. Horace Dobell formulated in our columns some weeks ago, appears to have been received with great favour. Messrs. John Moss & Co., of Galen Works, S.E., took up the manufacture of it at once, and the sample of the preparation which they send us is a good specimen of elegant pharmacy. As the "aperient" is made with Moss's "bland" cascara, it is quite pleasant to taste, so that the ordinary dose makes a palatable draught with a teaspoonful of water. The preparation is one which ought to become popular—others with less merit have become so—and chemists may safely introduce it as a household remedy for the purposes indicated in Dr. Dobell's paper.

S.V.R.—We have had the opportunity of examining a sample of the "special" treble-distilled rectified spirit which Messrs. Stephen Smith & Co., Bow, E., have recently introduced to the notice of the trade as a speciality for perfumes. We find the spirit to be fully of the strength which it is said to be, and it is practically free from other than the mere spirituous odour of the alcohol, this being due to the absence of aldehyde and the higher alcohols. We also find that the spirit makes excellent perfumes, and from testimonials which Messrs. Smith & Co. have received from various firms and chemists throughout the country, we judge that others have had similar favourable experience with the spirit. The firm also supply a very pure spiritus rectificatus, B.P., which is worth a trial.

MR. ARTHUR W. SHIRLEY, of 30 Paternoster Square, E.C., has sent us an advance copy of his new illustrated price-list of menthol cones, smelling-bottles, and other A1 brand specialities. The list is about the best proof one could have of the wonderfully high degree of popularity which menthol cones have acquired, but apart from this chemists will find the list useful for the extensive line of cheap and elegant cut-glass smelling-bottles which are figured in it. We have also received from Mr. Shirley a sample of his new toothache pencil, "Menthol cum cocaine." This is a solution of pure cocaine and menthol, the strength being 1 in 30. The combination is an exceedingly effective one for the relief of toothache, yet does not destroy the epithelium of the mouth. As the pencil is in no way "puffed" by the maker, it is not liable to medicine-stamp duty. Mr. Shirley is now giving away with each dozen of his menthol ointment two dozen sample boxes, each being sufficient for a cure. These help to make the 1*s.* 1½*d.* boxes go.

SOZOIODOL.—We have received from Mr. F. Boehm, of 27 Billiter Square Buildings, E.C., samples of various salts of di-*indo*-paraphenol sulphonic acid, or sozoiodol. This compound has been frequently referred to by us as a substitute for iodoform, which it excels in the freedom with which it parts with its combined iodine, as well as in total absence of odour. The samples show that the latter reputation is well founded, they being all free from unpleasant odour, while the white crystalline appearance of the alkaline salts is greatly in their favour. Therapeutically sozoiodol is increasing in favour amongst medical men. The most recent application of it is in dentistry for allaying the sensitiveness of exposed pulp before stopping. This, it is well known, iodoform does effectually; but its abhorrent odour prevents its use. The sozoiodol salts are used for the purpose in a very finely powdered state. One part of sodium-sozoiodol and two parts potassium-sozoiodol made into a paste with glycerine is put into the cavity. The soluble sodium salt gradually goes through the points of the root, while the potassium salt, which is almost insoluble, remains behind, thereby in nearly every case preventing periostitis.



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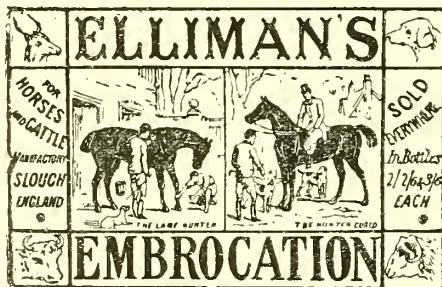
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## EDITORIAL NOTES.

### EDUCATIONAL.

"To prepare us for complete living is the function which education has to discharge, and the only rational mode of judging of an educational course is to judge in what degree it discharges such function." This thought of Mr. Herbert Spencer's naturally occurs at this season, when schools of all kinds are preparing to resume work for another session, and it is this thought which we have endeavoured to follow in formulating the very complete monograph of educational information which we present to-day. The refining influence



upon the individual may be the primary object of general education, but the ultimate effect of it is to make the individual a trained soldier for that never-ceasing war between the nations of the world for supremacy in arts and commerce. For many generations the United Kingdom has held the supremacy, and though of late years there has been indication that Continental nations are going ahead in the matter of education, and consequently in arts and commerce, there remains this solid fact in our favour, that our education, especially that of an advanced character, is supplied by combinations of individuals rather than by the State, and is not forced upon the people. Such education is always best, for it is purposely directed "to prepare us for complete living." Action based upon sound principle is sure to win in the end, and for that reason the constant stream of despondency regarding scientific education in this country is recalled for, and may be regarded as the result of too much attention being paid to other people's business, especially the German people's. We are well provided in this country with educational institutions of all sorts, including pharmaceutical, medical, and scientific. The pharmaceutical and medical are wholly directed to fit students for the callings which they have adopted, the entrance to the full enjoyment of the privileges of these callings being through the portals of the examination-room. Examination is not an unmixed blessing, but it has unquestionably been the principal factor in making British pharmacy a distinct unit amongst the scientific callings. It is, however, regarded by a section—a small section—of pharmacists to have failed in its object, consequently there has been much agitation during the past six years to place further bounds upon pharmaceutical education by the imposition of a curriculum. Should this agitation be successful, it is possible that the result will be as beneficial as the examinations have been; but we wish to impress upon students that neither a curriculum nor examinations will make a man a pharmacist. Personal ambition has something to do with that; interest in the work is a helpful factor; but a determination to make the most of his faculties for the public service, and therefore for his own benefit, is perhaps the most healthy spirit to find in a student. What applies to pharmacy is equally applicable to medicine and other occupations in which scientific or technical knowledge is part of the stock-in-trade. The knowledge should be the best obtainable, and always ready when there is a demand for it. The acquirement of the knowledge is not a matter of difficulty. Education, properly speaking, ends only with the life of an intelligent man, but youth is the time for laying down the foundation. From the day that a boy enters a pharmacy he should begin to make the most of his position, and in this his master can render him material assistance both in technical duties and in book work. Local facilities for scientific training should be taken advantage of, and the purely pharmaceutical subjects pursued by self-tuition. The whole of the spare time need not be so taken up, for general literature must not be neglected if the student wishes to retain and cultivate any social privileges which he may possess. It is seldom that social privileges are neglected; the tendency rather is to devote half-a-dozen years or more to them, and then as many months to education. This is bad. Education, to be useful, must be an early commenced and a continuous process.

### CARBOLIC ACID POISONING.

For cases of poisoning by carbolic acid is our record for this week. Three of these proved fatal, and all of them were suicides or attempts at suicide. Last week we reported six

deaths from this agent, three of which were caused by persons taking the acid by mistake for medicine or drink. This sort of thing is going on week after week. In Liverpool the fashion of taking carbolic acid as a convenient means of ending all other troubles has grown to such an extent that (as we reported last week, and more fully in this issue) the sanitary authorities are fairly aroused, and have memorialised the Privy Council. We are very glad of this. The latter body will have to make some sort of answer, we suppose, to the Liverpool memorial, and we are curious to see what excuse they will be able to frame for the long and culpable neglect of the safety of the public which in this regard it is their duty to watch. The fact stands on record against them that they expressly refused to add carbolic acid to the poison schedule when this course was proposed to them by the Pharmaceutical Council. After a long delay the Privy Council authorities in 1885 drafted a bill in which they proposed to add to the poisons schedule a third part to comprise substances which were to be sold by any one, but were to be labelled "poison." In his wonderful speech in introducing that Bill to the House of Lords, Lord Carlingford, then the President of the Privy Council, told his fellow legislators that the schedule to the Bill had been "prepared with great care by the distinguished gentleman who is the medical officer of the Local Government Board, and who has had the assistance of a distinguished specialist in this matter." It is to be assumed that the distinguished medical officer and the distinguished specialist had united their distinguished intellects to convey to the distinguished minister their views. He, as the spokesman for the Privy Council, told the House of Lords on that occasion that the substances named in the third part of the schedule then proposed were "substances which are very dangerous, but which may be described as something of which it would take a great deal to kill you"; and soon afterwards he added, still maintaining the high character of his English as well as of his scientific knowledge, "I believe I may take carbolic acid as an example of one of them." The other articles proposed for this third part of the schedule were sulphuric, hydrochloric, and citric acids, butyric acid, antimony, and chloride of zinc and its solutions. The Bill got shunted. It had been drafted to meet a momentary cry, and carbolic acid has been growing in favour among persons with suicidal intents, and has vastly increased its tale of victims from errors since that date, and no amelioration has been attempted.

The rapid development of popularity which has been accorded to carbolic acid as a medium of suicide is evidently due entirely to the circumstance that it can be obtained with such comparative ease. It is not perhaps so much the purpose of a Sale of Poisons Act to prevent suicides as to limit the chances of accidental deaths, and it is in regard to the latter that some measures are most urgently called for. At present the acid is sold by oilmen and grocers in any sort of vessel, and without any sort of precaution. Scores of accidental deaths have resulted since the Privy Council refused to accede to the Pharmaceutical Council's proposals, and most of those lamentable accidents would have been prevented if they had not been so ill-advised. But even as regards suicides the law ought to have some consideration. If it be the case that it is impossible to defeat the intentions of persons determined on self-destruction, it may at least be urged out of pity for the poor insane wretches who are to take it, that if some articles are to be left free, carbolic acid should be one of the last. The agonies of a death by its means must be very intense. Far better leave laudanum or prussic acid unprotected from this point of view.

If anything is done it is to be hoped that chemists will



show themselves willing to help in every reasonable way. There is no reason why some peculiar-shaped bottle should not be chosen for carbolic acid, and that its sale in any others should be prohibited. By such a provision, and by adding the substance to the second part of the schedule as it now exists, the chief sources of danger would be removed. And there is no reason why in any respect the public should be put to the slightest inconvenience.

## COMPANIES AND THE PHARMACY ACT.

### AN OPPORTUNITY FOR A TEST CASE.

WHEN the Pharmaceutical Society were defeated in Scotland last year, in the Leith Depot case, on the point of fixing responsibility personally on the shareholders of companies who associate themselves to do collectively what it would be illegal for them to do individually, it was strongly urged upon them that they should take an early opportunity of fighting a similar case in the English law courts. They secured one judgment in their favour in Scotch courts, and in a legal sense their argument was at least as good as that of their opponents. Avowedly the judgment of the Supreme Court [was based a little on prejudice, and very largely on assumed precedent. When the question came before the Council a secret discussion was held, but it was ultimately announced that "any further steps on the same lines as had been adopted in that case would have to form the subject of further consideration on the part of the Council, should it be thought desirable to go on." An excellent opportunity for that further consideration now presents itself.

One of the directors and a large shareholder in the firm of John Barker & Co., High Street, Kensington, "chemists and druggists," qualified by the easy process of registering themselves as a company, is a Mr. James Whitehead, of Highfield House, Catford, Kent. This is the private address of the James Whitehead, Alderman, who is expected to be the Lord Mayor of London for next year. Mr. Whitehead is reputed to be a man of exceptional abilities, and he is without doubt a man of substance. The prospectus issued by him and his fellow-directors, from which we quoted last week, shows that they are well aware of the conditions of the law. They were unable, they say, "as private traders to comply with the regulations of the Pharmacy Act." They know very well that they were unable, not because they were private traders, but because they had not been certified to be competent. They have now, "in order to meet the requirements of the Pharmacy Acts, formed a joint-stock company." It seems to us that this gentleman, who evidently sees so clearly what he is doing, and is no doubt prepared to defend his proceedings, would serve admirably to respond in a test case if the Pharmaceutical Council will take action against him.

**Criminal Bankruptcy Abroad.** In the recently published report of the Inspector-General in Bankruptcy reference is made to the leniency of the British law in regard to debtors' offences as compared with some of the statutes in force on the Continent.

Under the French law, for example, an insolvent debtor is liable to be punished with imprisonment where (among other offences)—(1) His personal or household expenses have been excessive. (2) He has lost large sums either in gambling, or in operations on the Stock Exchange, or in merchandise. (3) He has purchased goods to be sold below their market price, with the intention of staving off his failure. (4) He has with the same intention borrowed large sums of money and put bills in circulation (accommodation bills presumably), or has adopted other ruinous means for obtaining money.

(5) He has not kept books, or they have been kept irregularly, and do not give a true statement of his assets and liabilities.

Under the German code, also, debtors are dealt with under the criminal law, and punished by two years' imprisonment, wherever (among other offences) they have—(1) By excessive expenditure, gambling, or speculation in differences, either in Stock Exchange values or merchandise, lost excessive sums of money, or have become indebted through such losses. (2) Omitted to keep trade books as required by law, or kept them so improperly that they fail to give a proper survey of the position of their affairs. (3) Omitted to make up, in accordance with the German Commercial Code, a balance sheet, at the periods required by law, of their estates.

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**Mythology in the Alkali Trade.**

The life-size bust of Shakespeare, adorning the hall of the Brunner Free Library, at Northwich, Cheshire, presented to the town by Mr. J. T. Brunner, M.P., is frequently made the object of enthusiastic encomiums on the part of Irish visitors to the library, who often mistake it for the likeness of the hon. member himself, Mr. Brunner being, for many reasons, extremely popular among the natives of the sister isle. It is related that the other day an Irishman, who has been in Northwich for some years, was showing two recent importations from the sister isle the various figures adorning the library, when he proceeded to enlighten his companions upon Shakespeare as follows:—"Ah, this is the gentleman, Mr. John Brunner. I've worked for him thirteen or fourteen years, and he's a gentleman. I know him well, and, faith, it's a good likeness, too." One of the others replied, "God bless him, and is that Mr. Brunner?" "That's him, sure," replied his cicerone, "and yanderh" (pointing to a large bust of Jupiter and a group of Laocoon), "that gentleman's head there, near the fat man rubbing his sore leg, that's his partner, Mr. Mond!"

\* \*

**The Queen and the Stores.** A letter was lately published in the *Grocer* from a correspondent who stated that he had seen cases of goods addressed to Sir Henry Ponsonby at Osborne for the use of Her Majesty's household. In last week's *Grocer* Messrs. Chivas Brothers, "Grocers to Her Majesty and H.R.H. the Prince of Wales," Aberdeen, say:—"We sent a copy of the letter of 'A Loyal but Disgusted Tradesman' to the proper quarter, and have received the following answer:—"Her Majesty does not buy anything from the stores. You may certainly contradict the statement, and say you have authority for so doing."

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**Ultramarine Manufacture in England.** A *Times* correspondent gives some interesting particulars on the recent development of the manufacture of ultramarine in England. The principal ultramarine works have hitherto been in France and Germany, and they bought much of their raw material—white clay—in this country, where it is found in almost inexhaustible quantities, especially in the neighbourhood of Poole, in Dorsetshire. That ancient port is on the bank of the wide estuary of what was millions of years ago a great river, draining some vast continent, and hereabouts was swept down the detritus of argillaceous rocks and fine sand, forming the clay in which are found perfect casts of ferns and a plant like the eucalyptus of Australia. The clay was used by Wedgwood and his fellow-workers of the Staffordshire potteries; but besides this utilising of the clay for British potteries, which still goes on, it has been exported from Poole to foreign potteries from time immemorial, and of late years to France and Germany for the purpose of making ultramarine. Poole, therefore, has naturally been chosen as the fittest place to set up the new ultramarine works. The raw material is first treated in a so-called white chamber, where the grinding and mixing are done by a mill worked in the usual way by heavy stone vertical rollers moving round in a trough. The native powdery clay is here mixed intimately with common resin and soda, and when sufficiently fine is fit to be charged, by



shang and gentle pressure, into a crucible, which is cylindrical and about 18 inches high. The charged crucible is sealed up ready for the furnace. This is very large, quadrangular in form, with closed chambers, the fire being below, and the heat communicated to the crucibles kept at a steady rose-red point for thirty-six hours, and then gradually reduced to the temperature at which the products can be exposed to the air and light without change. This cooling appears to be a matter of essential importance, for if the heat has not been fully maintained the colour is found to be green instead of blue. This condition, however, which is transitional, is found to be a permanent one under the influence of any degree of sunlight and exposure to the atmosphere, and consequently this green is made as well as the blue, and it is, in fact, a very beautiful colour, much resembling in tint and quality the colour known to artists as green cobalt. Of course, it is only useful as a pigment, while the blue is also largely employed by laundry blue makers, colour printers, paper stainers, &c. As it is necessary to produce the blue in the state of an impalpable powder and to abstract from it every impurity, it has to be washed in pure water by a method of constant stirring, when after a time the soluble matters are removed and the blue is suspended in the water. It is then to be collected and dried in large heated chambers, after which it is again brought into fine powder and submitted to the still finer sifting obtained by revolving sieve made of silk, through which the now impalpable powder finds its way. The ultramarine made at Poole is sold at the rate of 35*l.* per ton. We may add that last year 24.7 cwts. of ultramarine were imported into the United Kingdom from Germany alone, and that the total exports of ultramarine from the latter country were 103,470 cwts.

# BANKRUPTCY REPORTS.

**FRED GEORGE LEANEY**, Tisbury, Wilts, Veterinary Surgeon.

At the offices of the Official Receiver, Salisbury, the first meeting of the creditors in this case was held on September 11. Mr. H. Rowe appeared on behalf of a creditor, and the Official Receiver was represented by Mr. J. K. Dowden. The debtor's statement of affairs as filed showed liabilities expected to rank 103*l.* 2*s.* 8*d.*, with assets 59*l.* 15*s.*, consisting of stock-in-trade 3*l.*, furniture 20*l.*, good book debts 36*l.* 13*s.*. From this 8*l.* 10*s.* has to be deducted for preferential claims, thus leaving a deficiency of 51*l.* 17*s.* 8*d.* The debtor alleged "want of business and a want of capital" as the causes of his failure.

According to an observation of the Official Receiver, the receiving order was made on the debtor's own petition. He states that he commenced business in 1884 without capital, taking his father's business, his mother claiming all book debts. Nearly the whole of the unsecured liabilities were contracted in the years 1887 and 1888. No attempt has been made to account for the deficiency in detail; the debtor states he has kept a day-book and ledger, but they have not yet been inspected. In reply to questions put by the Official Receiver's representative, the debtor said he had never taken stock. His income for the last three years had been about 100*l.* year. His expenditure during that period had been 120*l.*

Mr. Dowden said, as the debtor had no offer to make, the estate would be wound up in bankruptcy, the Official Receiver being trustee under the Act.

The unsecured creditors are:—

	£	s.	d.
Arbryn & Stacey, chemists, High Holborn ..	24	13	5
Bombes Bros., Tisbury ..	16	17	6
Cartlett, N. J., Warminster ..	2	2	0
Coley, J. T., Frome ..	4	19	0
Coff, H., Tisbury ..	3	16	6
Coddard, F., chemist, Tisbury ..	3	4	6
Cowell, Tisbury ..	5	0	0
Cropper Bros., Tisbury ..	5	4	11
Crowther, Salisbury ..	3	0	0
Donald, Swindon ..	3	11	0
Had & Orchard, chemists, Salisbury ..	9	2	4
Hindall, Tisbury ..	5	4	0
Hanford, B., Tisbury ..	10	0	0
Hepperd, Gillingham ..	3	13	

**Re C. F. G. CLARKE, JUN.,** Dudley, Chemist.

A PETITION has been filed at the Dudley County Court on behalf of Mr. C. F. G. Clarke, jun., wholesale chemist and druggist, Market Place, Dudley. The liabilities are estimated at 2,500*l.* Messrs. Warrington and Thompson are the solicitors acting in the matter. The debtor made an effort to compromise with his creditors at Birmingham the previous week.

**Re JOHN GLEDHILL,** Gibbet Street, Halifax, Druggist.

IN this case the total liabilities are returned at 908*l.* 8*s.* 2*d.* and the assets at 188*l.* 15*s.* 11*d.* Subjoined is a list of the unsecured creditors:—

	£	s.	d.
Mackey, Mackey & Co., London ..	20	6	4
Wyleys & Co., Coventry ..	30	13	7
Gledhill, Albert, Crawley ..	12	0	0
Blakey, H., & Sons, Halifax ..	12	6	6
Cocker, Walter, Halifax ..	27	0	0
Gledhill, Mrs., Halifax ..	10	0	0
Gledhill, R. H., Halifax ..	21	8	3
Kerr, R. M. & J. M., Halifax ..	71	19	0
Waterhouse, Mrs., Halifax ..	20	0	0
Wilson, —, Halifax ..	80	0	0
Sutcliffe, John, Hebden Bridge ..	30	0	0
Hirst, Brookes & Hirst, Leeds ..	20	15	9
Ayrton & Saunders, Liverpool ..	16	1	7
Jackson, W. & H., Liverpool ..	18	12	8
Ripley, Richard, Liverpool ..	14	8	4
Sumner & Co., Liverpool ..	17	1	6
White & Co., Liverpool ..	11	10	0
Oldfield, Pattinson & Co., Manchester ..	25	11	6
Fielding, Ball & Co., Sowerby Bridge ..	24	12	2
Union Loan Office, Stockport ..	52	0	0
Kilner Brothers, Thornhill Lees ..	12	17	7
Creditors under 10 <i>l.</i> ..	249	3	5

**Re HENRY FREDERICK COX,** 7 Chicksand Street, London.

THE bankrupt (trading as H. F. Cox & Co., chemical manufacturers) has scheduled the following list of creditors:—

	£	s.	d.
Austin, H. & Co., London ..	19	18	6
Attfield, J., London ..	11	11	0
Berk, F. W., & Co., London ..	12	17	0
Brefitt & Co., London ..	18	18	11
Burrough, James, London ..	10	0	0
Chesterman, T. G., London ..	12	0	0
City Bank, London ..	25	0	0
Collett, Dodd & Co., London ..	21	2	0
Crosse & Blackwell, London ..	29	1	11
Dann, Collin & Co., London ..	23	10	0
Fagg, H., London ..	250	0	0
Falkner, J. W., London ..	75	1	6
Godson & Winterton, London ..	47	3	10
Greenhough, D. W., London ..	53	17	0
Greene, Henry, & Sons, London ..	23	14	9
Horner & Sons, London ..	13	7	0
Hancock, J. L., London ..	10	0	0
Kimber, John, London ..	10	0	0
Lister & Biggs, London ..	594	16	0
Leftwich, A., London ..	10	0	0
May & Baker, London ..	13	2	10
Noakes & Co., London ..	10	0	0
Oldfield, G., & Sons, London ..	13	10	9
Powell & Co., London ..	10	0	0
Parker & Amis, London ..	13	15	3
Pearce & Son, London ..	27	6	3
Petty, Wood & Co., London ..	12	0	0
Radford & Co., London ..	23	0	4
Robbins, James, London ..	17	1	11
Russell, John & Co. (Limited), London ..	11	8	5
Smith, H. R., London ..	363	2	8
Wallace, Hugh, & Co., London ..	45	4	5
Currie, J., & Co., Bromley ..	197	18	7
Hills, F. C., & Co., Deptford ..	240	8	8
Colliers, J. C., Godalming ..	17	17	6
Peters, G., & Co., Southsea ..	33	13	6
Kindersley & Johnson, Stratford ..	40	18	3
Dunn & Co., West Ham ..	10	16	9
Young, Henry, West Ham ..	34	13	0



HOMŒOPATHIC CONGRESS.—The annual congress of homœopathic practitioners of the United Kingdom was held on Thursday at the Midland Institute, Birmingham. Dr. Dyce Brown, London, who presided, complained of the attitude of allopathic practitioners towards homœopathy, and said just now the tactics of the old school were to absorb the results of homœopathic teaching, and to repudiate the source from which they were derived. They were, however, making progress, but until there was absolute freedom of thought and opinion the progress of therapeutics must be retarded. Papers on various medical subjects were read.



## Trade Report.

**Notice to Retail Buyers:**—It should be remembered that the quotations in this section are invariably the lowest net cash prices actually paid for large quantities in bulk. In many cases allowances have to be added before ordinary prices can be ascertained. Frequently goods must be picked and sorted to suit the demands of the retail trade, causing much labour and the accumulation of rejections, not all of which are suitable, even for manufacturing purposes.

It should also be recollected that for many articles the range of quality is very wide.

42 CANNON STREET, E.C., September 20.

**BUSINESS** has not been so brisk in the drug and chemical markets this week as it had been when our last report issued, but considerable activity still prevails in the allied trades, notably in heavy chemicals, oils, spices, and certain distilleries. The drug auctions held to-day were very heavy, but an exceedingly dull tone prevailed at them. Cardamoms, cumbar, and honey were higher in price, while senna and ipacuanha maintained their previous values. Musk cannot be said to have altered, both owners and buyers holding off for the moment. Camphor, tolu, balsam, and peruvian balsam remain steady, while olive and castor oils have advanced, and are in good demand. Of essential oils, French lavender, rosemary, pennyroyal, and American peppermint are dearer, but Mitcham pepper must be called easier. Asafetida and koo gum sold at rather lower rates, and vanilla was also easier. Among chemicals the principal advance is in caustic soda, chlorate of potash, and bleaching powder, but sulphate of ammonia and arsenic are a shade easier. Quicksilver has undergone no change, but the bottom was knocked out of the somewhat hollow quinine movement at to-day's drug auctions, when prices fell about 3*d.* per oz. below those mainly quoted for German bulk quinine. Palm oil and turpentine have risen again, but petroleum is again lower. In spices, especially cloves, white pepper, and pimento, there is an active speculative movement. Gambier is dearer, and shellac fully maintains its price.

**COLONIAL BROKER PUBLICLY REBUKED.**—A very significant incident occurred at the drysaltary auctions on Tuesday. Mr. Samuel Figgis, before commencing to offer the goods catalogued in the name of Messrs. Lewis & Peat, referred to "certain circumstances which had lately transpired in connection with one or two gentlemen, which, he considered, rendered it incumbent upon him to offer some plain observations. When persons assuming the title of 'colonial brokers,' and professing themselves capable of accurately value articles belonging to their trade, purchased such goods at figures very much below the actual value, and under circumstances of which they had all heard, the trade owed it to themselves as a duty to take serious notice of such proceedings. He referred to a case which had recently become public, and in connection with which the name was mentioned of one or two persons whom he now saw present in the room." Here Mr. Figgis, after blandly surveying the audience generally, pointed, at first more or less indefinitely, and gradually with much greater precision, to the right-hand side of the table below him, at which a number of gentlemen had taken their seats. Pointedly addressing some one in the extreme right-hand corner, Mr. Figgis stated that in his opinion a certain gentleman at that table below would do well to leave the room, and not to show himself in future at the auctions again, and that, moreover, his (Mr. Figgis's) firm had given the individual in question notice that they would never take his bid again. Some measure of applause perpetuated the close of Mr. Figgis's observations, the auctioneer proceeding with his sale as if nothing had happened, and the person upon whom everybody's look was fixed as the subject of the denunciation, continuing to preserve the air of absent-minded indifference which he had maintained throughout the proceedings, and entirely neglecting Mr. Figgis's advice to leave the room. The case which is supposed to have given rise to Mr. Figgis's remarks is reported elsewhere in our columns.

**THE SALT COMBINATION.**—Efforts have been for some time in progress for combining the whole of the salt works of Great Britain into a gigantic "Trust" or combination, and it would seem as if the negotiations on the subject have resulted in the adoption of a scheme which is said by its promoters to possess every element of success. The Great Salt Trust will work with a capital of between two and three millions sterling, which is said to have been promised several times over; its headquarters are to be at Northwich in Cheshire, one of the centres of the alkali trade, and the board of directors is to include five of the principal representatives of the Cheshire salt trade. The salt works of Darham and Worcestershire are also, we are informed, being drawn into the concern. The promoters of the scheme profess the belief that the alkali trade will not in any way be influenced by the scheme.

**THE STATISTICS OF THE FOREIGN TRADE OF THE UNITED STATES** for the year ended June 30 appear to show that New York is rather losing its relative importance as a port. In the year 1884-5 New York dealt with 46.42 per cent. of the whole foreign trade of the country; in 1885-6 the proportion was 46.26 per cent.; in 1886-7, 44.17 per cent., and last year 44.63 per cent.

**CERTIFICATES OF ORIGIN FOR ITALY.**—In order to simplify the certificates of origin which are required to be sent with all goods exported from England to Italy, the Italian Chamber of Commerce in London will, on and after September 16, grant these certificates free of charge, between the hours of 10 and 4, at 50 Old Broad Street, E.C.

**TARIFF CHANGES IN QUEENSLAND.**—Following the example of Victoria and New Zealand, the Government of Queensland contemplates a general advance in the Customs' duties, under the plea of providing for a deficit of 135,000*l.* in the Budget. Many *ad valorem* rates are to be raised to 15 per cent., and wherever practicable specific rates will be adopted.

**ACID (CITRIC)** is quiet on the spot, the quotations running from 1*s.* 6½*d.* to 1*s.* 6¾*d.* per lb. At the auctions 9 casks of the "Lawes'" brand were offered, and bought in at 1*s.* 6*d.* per lb.; but no samples of this parcel were shown, and we cannot, therefore, say anything about its quality. With respect to *Concentrated juice*, Mr. G. Ainis (Messina) states that the whole transactions passed in August have amounted to 100 pipes for London, and 50 pipes for the States, both being now in course of shipment. The stock is reduced to 600 to 700 pipes, which is thought rather large considering the short interval that separates us from December, when the new crop juice, which is obtainable at 3*s.* per pipe cheaper than the old, is expected on the market.

**ACID (OXALIC)** remains firm at the recent advance to 4*d.* per lb. *Sal acetos* steady at 7*d.* per lb.

**ACID (TARTARIC)** dull at 1*s.* 5½*d.* for *English*, and 1*s.* 5*d.* to 1*s.* 5½*d.* for foreign brands.

**ALOES.**—*Cape* aloes remain very dull, and of the 38 cases offered at the auctions only a part was sold at unchanged prices, good bright hard very slightly drossy, 21*s.*; fair, 20*s.*; drossy and soft from 17*s.* down to 14*s.*; common, 12*s.* *Curaçao* aloes remain cheap, but there seemed to be a slightly better demand at to-day's sales than has been observed lately, 179 packages being nearly all disposed of at 5*s.* for fair brown liver; 30*s.* to 40*s.* for dark to red ditto; from 15*s.* to 20*s.* for common overheated; and 7*s.* to 9*s.* per cwt. for rubbish. Good *Capey Curaçao*s in gourds realised 29*s.*; fair to very good ditto in cases, 24*s.* to 39*s.* per cwt. *Zanzibar* aloes of medium qualities are still offering in large quantities. At to-day's auctions 32 packages fair red to dark half soft in tins sold at 45*s.* to 70*s.* per cwt.

**AMBERGRIS.**—Several tins were offered to-day, but fine quality is still conspicuous by its absence. For one tin of 17½ oz. 13*s.* was refused 15*s.* being the limit, and this is a specimen of a large proportion of what is now being offered.

**AMMONIA SALTS.**—*Carbonate* unchanged at 4*d.* per lb. *Sal ammoniac* steady at 34*s.* for first and 32*s.* for second



quality. *Sulphate* dull at 11*l*. 8*s*. 9*d*. for good grey (London); Hull, 11*l*. 6*s*. 3*d*.; Leith, 11*l*. 5*s*.

**ANISE.**—The market remains very firm indeed and stocks are becoming smaller. The new *Russian* seed, which is late, is said to be smaller and darker than usual.

**ANNATTO.**—There is no change in values, which remain very low. At to-day's auctions only a few lots *Ceylon* seed were offered, 2*d*. per lb. being paid in some instances.

**ARSENIC** is not quite so firmly held and 12*l*. 10*s*. would now buy fine white powder, landed terms.

**BAEL FRUIT.**—Ten cases shrivelled dried apple, slightly wormy, were bought in at 4*d*. per lb.

**BALSAMS.**—*Copaiba* still remains firm for good qualities, from 2*s*. 4*d*. to 2*s*. 5*d*. being the quotation given for fine bright Maranham. At to-day's auctions 10 barrels of a dark-coloured balsam were offered imported *via* Liverpool, but probably brought over to that port from Hamburg, where there is a plentiful stock of "Babia," "Maracaibo," and other balsams of inferior quality. The lot was bought in at 2*s*. 4*d*. per lb. nominally. *Gurjun* balsam (wood oil), 100 drums, newly imported from Singapore, were shown, but bought in. Of *Peruvian* balsam 22 cases were shown, but only some sediments sold at 2*s*. 8*d*. per lb. For "unworked" balsam 4*s*. is suggested, and 4*s*. 2*d*. to 4*s*. 3*d*. for "worked." For five cases *Tolu* balsam 1*s*. 6*d*. per lb. was refused.

**BLEACHING POWDER** dearer and rather difficult to procure in the North. London still quotes 8*l*. 5*s*. to 8*l*. 10*s*., but on the Tyne 7*l*. 12*s*. 6*d*. to 7*l*. 15*s*. is asked.

**BORAX.**—The makers have not changed their quotations, which are 30*l*. to 31*l*., but there are still some second-hand parcels offering as low as 28*l*. 10*s*.

**BROMINE** and bromides remain firm at the prices last quoted.

**BUCHU.**—There is no improvement in the demand for this drug, which is still obtainable at very low rates indeed. Yellow to fair green round leaves were bought in to-day at 2½*d*. to 3*d*. and long green leaves nominally at 1*s*. per lb.

**CALUMBA.**—At to-day's auctions 225 bales were offered, and about 40 were disposed of at an advance of about 3*s*. per cwt. as compared with the previous auction rates, fair yellowish mixed sorts fetching from 20*s*. to 22*s*. 6*d*., and a parcel of rather dusty but good sound root being apparently sold at 37*s*. 6*d*. per cwt., which would certainly be much above the value; 18*s*. was refused for 52 bags small to bold yellowish, mixed but wormy, and 60*s*. is asked for a parcel of bright bold washed root, also wormy.

**CAMPHOR.**—*Crude* remains very firm, but we do not hear of any further sales on the spot. Telegrams received from China this week quote Japan camphor at the equivalent of 84*s*. per cwt. c.i.f. by sailing-vessel.

**CANARY SEED.**—*Turkish* seed of the new crop has been coming in lately, and the demand for it has been very active, prices now ranging from 39*s*. for common to 43*s*. for fine cleaned. The stock of old *Turkish* seed is still a heavy one, being computed at 10,000 bales in Liverpool and about 5,000 in London. Old *Morocco* seed is more freely offered, shipments of the new seed being nearer at hand. Of *La Plata* there is also a small stock on sale, and small parcels of home-grown seed keep coming in from time to time. *Spanish* seed is decidedly scarce; a first parcel of very fine new realised 56*s*. From *Holland* nothing fresh is to be heard, but the extremely high prices reported from the local markets tend to show that that country will probably remain out of touch with us.

**CANELA ALBA.**—Twenty-six bales very small, partly pale, partly dark and damaged bark, were bought in at 25*s*. per cwt.

**CANTHARIDES.**—*Russian* flies quiet. At the auctions only 2 cases *Chinese* cantharides, rather mouldy, were shown, and these were sold at 8½*d*. per lb.

**CARAWAY SEED.**—Parcels of old seed and of good new seed, which is very scarce, are held at very full prices, up to 28*s*. per cwt. being required.

**CARDAMOMS.**—The auctions to-day included 94 packages of rather better quality than the usual average. There was

a steady competition, and the bulk sold at full to 2*d*. dearer prices for the better lots, but occasionally cheaper for more ordinary parcels. *Mangalore*, smooth bold pale, 2*s*. 7*d*.; fair heavy "CCC" brand, 2*s*. 4*d*.; medium ditto, 1*s*. 9*d*.; small pale, 1*s*. 2*d*. per lb. *Ceylon Malabar*, good bold heavy pile but warty, 2*s*. to 2*s*. 2*d*.; ditto, yellowish, 1*s*. 11*d*.; medium, plump pale to yellow, 1*s*. 6*d*.; fair grey, 1*s*. 5*d*.; skinny and specky brown, 1*s*. 1*d*.; small long yellow, 1*s*.; ordinary, 10*d*. to 1*s*. per lb. *Mysore*, good medium to bold pale, long and plump mixed, 1*s*. 11*d*. to 2*s*.; fair medium rather warty, 1*s*. 7*d*. to 1*s*. 8*d*., fairly bold smooth being 1*s*. 6*d*. to 1*s*. 5*d*.; small pale, 1*s*. 1*d*. to 1*s*. 2*d*. Dull *Wild Ceylon*, 3*d*. per lb. *Seed*, 1*s*. to 1*s*. 4*d*. per lb. The following are the figures relating to the exports from Ceylon during the periods between October 1 and Aug. 23, 1887-8, 290,057 lbs.; 1886-7, 302,066 lbs.; 1885-6, 220,178 lbs.

**CINCHONA.**—At to-day's auctions there was a pretty large show of South American *Calisaya* bark, partly of the thin cultivated "imitation flat" bark, which did not sell, and some wild flat *Calisaya*, which is arriving in large quantities. For the latter, rather small and soft and somewhat damaged, 1*s*. 7*d*. was paid, a badly-damaged lot fetching 1*s*. per lb. Several parcels of *Crown* bark also sold at 9*d*. to 1*s*. per lb. for fair rusty quill. Next Tuesday's auctions are likely to be rather heavier than the average of recent sales, 3,151 packages being already announced, including 1,366 Ceylon, 381 East Indian, and 1,404 South American bark. The latest mail advices from Ceylon give the exports as follows:—

October 1, 1887, to August 23, 1888	..	..	10,708,110 lbs.
" 1886 " " 1887	..	..	13,233,422 "
" 1885 " " 1886	..	..	14,408,297 "
" 1884 " " 1885	..	..	10,070,873 "

The *Trop. Agric.* estimates the world's requirements in quinine and the supply of cinchona from the Eastern hemisphere during the next four years as follows:—

	1889		1890	
	Exports Bark	Average Standard	Exports Bark	Average Standard
Ceylon ..	lbs. 9,000,000	2 per cent.	lbs. 7,000,000	2½ per cent.
Java ..	5,000,000	3½ "	6,000,000	4 "
India ..	2,000,000	2 "	2,500,000	2 "
Total..	16,000,000	—	15,500,000	—

	1891		1892	
	Exports Bark	Average Standard	Exports Bark	Average Standard
Ceylon ..	lbs. 6,000,000	2½ per cent.	lbs. 6,000,000	2½ per cent.
Java ..	7,000,000	4½ "	8,000,000	4½ "
India ..	3,000,000	2½ "	3,000,000	2½ "
Total..	16,000,000	—	17,000,000	—

	1889 Oz.	1890 Oz.	1891 Oz.	1892 Oz.
Quinine required ..	7,500,000	8,250,000	9,000,000	10,000,000
Quinine contained in total bark exports ..	6,500,000	7,500,000	8,750,000	9,500,000
Deficiency ..	1,000,000	750,000	250,000	500,000

It would have been more interesting if the *Tropic. Agric.* had published at the same time the data upon which its estimates are based, and it should be said that it is careful to add: There must, of course, be great uncertainty as to future exports from Java, and, indeed, from Ceylon; for no one can say how far a slight rise in the price of bark would tempt Ceylon planters to harvest in any one year, though, of course, the exports in later years would suffer in a corresponding degree.

**CASCARA SAGRADA.**—There seems to be hardly anything available here, but it is thought that some old bark might

ill be procured in New York at about 75s. for prompt shipment.

**CASSIA FISTULA.**—38 bags lean, wormy, rattling pods from Bombay were bought in at 15s. per cwt.

**CASTORUM.**—About 195 lbs. Canadian castorum were offered at to-day's auctions, and sold with good competition at 30s. to 31s. for good but rather damp, 29s. for smaller and darker, and 19s. for ordinary quality, oil bags bringing 6s. per dozen.

**CHAMOMILES** remain fairly steady, but fine *Belgian* flowers might now be had at 63s. per cwt. The last pickings are now offered to be placed on the market and these may probably be had at lower rates, though the flowers are not so good.

**CHIRETTA.**—Four bales were bought in to-day at 6d. per lb.

**CIVET.**—Several horns were offered for sale to-day, but only 3 were sold at 12s. per oz., being rather deficient in flavour (though of good quality), as they were imported even years ago. For lots of recent import 18s. is asked.

**CONDURANGO.**—Several parcels were offered for sale, but most of it was wood rather than bark, and only 16 packages, partly dark and damaged, but fairly "barky," sold at 9d. to 1½d. per lb.

**COPPER (SULPHATE)** very firm at 20l. to 20l. 5s. per ton.

**COTO BARK.**—At to-day's auctions five bales of true coto bark, which have been offered several times, were again bought in at 2s. 9d. per lb. nominally.

**CREAM OF TARTAR** remains at last week's quotations, 13s. for best white, but indications seem rather in favour of further reduction in the price.

**CUBEBS.**—At to-day's auctions 10 bales, mostly genuine berries, slightly stalky, of good appearance, sold at 26l. per cwt.

**CUMIN SEED.**—Good *Malta* was bought in to-day at 45s. per cwt.

**CUTCH** fairly steady, with sales of *RS* in block at 25s. 6d.; *Godia*, tablets, at 26s.; *W two stars* and *Double eagle* at 3s. 6d.; and *Star B* at 31s. per cwt. At the auctions 307 boxes *Double fish*, in tablets, and soft *Snake*, branch, were bought in.

**DRAGON'S BLOOD.**—Nine cases were offered to-day, but nothing was sold. Bold finger of good colour, but rather broken and fallen out of the reed, is held at 7l., while 2 cases of common drossy slabs were bought in at 90s. per cwt.

**ELATERIUM.**—There is little doing in this article. 251 oz. *Miltese* were offered, and 2s. 9d. to 3s. per oz. was suggested for dark to good greenish squares.

**ERGOT OF RYE.**—Seven bags wormy but sifted *Spanish* were sold at 10d. per lb., while for 22 bags *Russian*, good fish but mixed with seed, 8½d. per lb. was refused.

**ENUGREEK SEED** firm at last week's quotations.

**HALANGAL.**—100 bags slightly wormy root were taken or without mention of price, 9s. per cwt. being refused.

**HAMBIER.**—Block remains very firm, but unchanged, on the spot, while for distant delivery prices are advancing. A number of transactions, since our last report, at the following rates:—Spot, 25s. 6d.; July-August shipment, 24s. 6d., rising to 25s. 3d.; August-September and October-November at 23s. 9d. per cwt. *Cubes* have sold at 35s. 6d. for August-September shipment.

**HAMBOGE** firm, but owners' ideas are above the present market value. At to-day's auctions five cases good loose pieces, slightly blocky, bright fracture, were bought in at 15l. per cwt.

**GLYCERINE** steady but unchanged at 66l. to 67l. for double distilled, s.g. 1.260.

**GUM AMMONIACUM.**—There was a rather considerable supply of twenty-five cases catalogued, but nothing was sold, fairly good clean drop being held at 25s., and ordinary seedy block at 18s. per cwt.

**GUM ARABIC.**—Since last week's auctions there has been, it is said, a brisk demand for *Ghatti* and *Amrad* gums, with

sales at advancing rates. At to-day's auctions only *Cape* gum was sold at firm prices, bold pale rough picked 7l. 10s., fair pale clean medium to bold slightly dusty 55s. to 57s.; small siftings 31s. 6d. per cwt.; of *White Mogador* 12 cases rather drossy and red mixed were bought in at 9l. 10s. nominally. Cairo reports mention that there is no stock left in that city of *Turkey* and *Gehzirah* gums, while in gums from the Red Sea coast business has been rather dull lately, although prices keep firm at 80s. to 125s. per cwt. There is at present a stock of about 237 serons of these gums.

**GUM ASAFETIDA.**—Of 271 cases 134 were sold rather cheaply to-day at 30s. to 31s. for fair pinky block, and 27s. for ordinary stony ditto.

**GUM BENJAMIN.**—*Siam* gum was in good supply to-day, and sold well at the low prices of last auctions. Fair bright loose almonds and blocks, 15l. to 16l.; small blocky almonds and siftings, 10l. 15s.; blocky grains, 7l.; dull ditto, woody and drossy, 80s. to 85s. *Penang* went cheaply—Fair almondy seconds, broad brown borders, 6l. 10s. *Palembang*—Fine almondy in small boxes, 80s.; ordinary resiny, 36s. to 55s. bought in.

**GUM GUAIACUM.**—Three casks fine glossy brown block sold at 2s. 6d. to 2s. 7d. per lb.

**GUM KINO.**—Eleven cases good bright cochine were sold at 30s. per cwt., being 4s. below the recent public sale prices.

**GUM MYRRH.**—Firmly held, but without demand. At the auctions 75 packages were offered, but all bought in. To-day sorts are held at 90s. to 92s. 6d. per cwt.

**GUM FRAGACANTH.**—To-morrow 400 packages, including 100 hog gum, will be offered for sale by auction.

**HONEY.**—Another consignment of 67 packages *Chilian* honey arrived at Liverpool from Valparaiso this week. Of *Californian* 7 cases partly candied yellow were bought in to-day at 36s. per cwt. *Jamaica* sold with good competition at an advance of 3s. to 4s. per cwt; good thin brown, 33s.; fairly good brown, 28s. to 29s.; rather dark red, 26s. to 27s. 6d.; and dull liquid at 25s. to 25s. 6d. per cwt.

**INDIGO.**—For the auctions of East Indian indigo, to be held on October 8, 6,100 chests have been declared, consisting of 1,670 chests Bengal, 3,660 Kurpah, 400 Madras, and 370 Bombay. In the meantime the market remains quiet, but the small transactions which have been made show full rates, in consequence of reports from Calcutta announcing that some damage has been caused to the crop.

**INSECT FLOWERS.**—There is no change in the quotations from Trieste, and in spite of the accumulating stock the owners there hold out well.

**IODINE** firm. *Crude* at 9d. per oz.; *Resublimed*, 13s. 6d. per lb.; and *Potassium iodide* 11s. per lb.

**IPECACUANHA.**—Another arrival of 82 packages *via* Antwerp came to hand on the day before the auctions, but although it had been generally anticipated that the price would be influenced thereby, such was not the case, and the considerable arrivals of the last few weeks appear to be absorbed with ease. Of 36 packages offered to-day, 26 sold at exactly the previous rates, from 6s. 8d. to 6s. 9d. per lb. for fairly good annulated but more or less damaged and mouldy root. One case of *East Indian*, "so-called," *ipecacuanha* was bought in, 9½d. per lb. being refused for it.

**JALAP.**—Fairly steady. It is said that sound *Vera Cruz* is selling at 5½d. per lb. privately, but there is certainly no demand for it at the auctions, 79 packages being all bought in. For sound 5½d., and for damaged 5½d. per lb. is asked.

**MERCURIALS.**—Nominally prices remain unchanged since last week.

**MUSK.**—The quantity offered to-day included only one tin first pile *Tonquin* pods of thin blue skin, but the quality was not very superior. This lot was bought in at 110s. nominally. There were no bids for it. Seventeen caddies first pile medium to bold good old-fashioned, well-trimmed pods were all bought in at 100s. to 110s., an offer of 100s. being refused for the best lot, while for others the bidding ran from 90s. to 99s. per oz. One tin very skinny rather small pods sold after a good deal of trouble at 82s. per oz. Third pile was bought in at 25s. to 60s. per oz. For fair *Cabardine* pods 21s. is



asked. Empty skins sold at 3s. 2d. to 3s. 11d., and several tins of "grain musk" at from 2s. 6d. to 5s. 3d. per oz.

**NUX VOMICA.**—Ninety-five bags were all sold at full prices; *Ceylon*, fairly silky but small and partly dark 10s., dark and damaged small *Madras* at 8s. to 9s. 6d. per cwt.

**OIL (CASTOR).**—The Liverpool market has been very active and closes at higher rates, good *Calcutta* seconds being firmly held at 3d. per lb., and 2½d. having been freely paid for *Madras* oil. Our own market is also firmer, although not quite so active. At to-day's auctions 400 cases were all bought in, good pale *Calcutta* firsts at 4½d., rather mixed *Cocanada* at 2½d. per lb.

**OIL (OLIVE).**—Our market has again advanced with *Mogador* oil at 35½, at which price there are buyers, all cheaper parcels being taken up, *Sicilian* at 35½, to 36½, and *Spanish* nominally at 37½. From the producing countries the following reports are to hand:—The Naples market has advanced, and closes very firmly at from 31s. 10d. to 33s. 5d. f.o.b., with a good export demand, and a consequent reduction of the stock to 7,000 tuns at Gioja, and 3,000 tuns at Gallipoli, while in the interior the supplies are insignificant. It seems that before the new crop comes on the market the stock in Southern Italy will be reduced much below the usual average. The weather in Naples is not favourable. At Gioja the injury from the olive worm is daily increasing, and there are now reports of the olive worm having made its appearance in other parts of Calabria, as also in some districts of the province of Locca. In Sicily prices have also advanced. In the Ionian Islands the price of Zante has risen to 32½ f.o.b., and the whole of the small stock there will probably be taken for home consumption. No oil offers from the other islands. The crops have not progressed so favourably of late, as the weather has been too dry, and consequently a reduction is now necessary from late estimates of the probable yield. In Crete also prospects are less favourable, and it is no longer anticipated that the new crop can yield 30,000 tuns, as had been hoped. In Adramyti and Mytilene stocks are now exhausted. The failure of the Tunis crop is now fully established. From Morocco no oil is yet available for export, and unless prices continue to improve in London, shipments are not likely to be resumed till the spring. With Spain ready oil business continues to be impracticable. The crop proceeds without any very serious complaints of damage, but seems now to be expected to turn out only a fair average one, instead of abundant as had been hoped earlier in the season. Some little business is reported in Malaga contracts for January-February shipment by steamer to England at 32½ 10s. c.&f., in petroleum barrels.

**OILS (ESSENTIAL).**—The following are the present quotations for the principal Italian essential oils, f.o.b. Messina, net cash. *Bergamot*, 9s. 3d.; *Lemon*, 4s.; *orange*, 4s. per lb. As regards French oils, there has been a considerable advance in *Lavender*, which is now held at 8s. 3d. in bulk, and 8s. 9d. in bottles for good quality. *Penmyroyal* and *Rosemary* are also dearer. *Cassia oil*, per steamer shipment, is quoted in China telegrams this week at 2s. 8d., and *Star anise*, also per steamer, at 6s. per cwt. *Cinnamon oil* has been exported from Ceylon to the following extent in the periods between October 1 and August 23: 1887-8, 133,115 oz.; 1886-7, 54,501 oz.; 1885-6, 89,248 oz. At the auctions only one case of dark oil sold at 6d. per oz., while for *Cinnamon leaf oil* 1½d. was paid. *Citronella* oil remains very dull at ¾d. to ¾d. per oz. on the spot for native brands. "Fishers," of which ten cases were offered at auction, is held at 1½d. per oz. From Ceylon, in the periods between October 1 and August 23, the shipments are given as follows:—1887-8, 9,201,365 oz.; 1886-7, 7,749,626 oz.; 1885-6, 6,004,294 oz. For West Indian *Oil of limes* 3s. is asked. Of *Nang-yang* ten bottles AJYS brand sold cheaply at 3s. to 3s. 4d.; another consignment is held at 9s. per oz. *Oil of Rose* firm on the basis of 19s. 6d. per oz. f.o.b. Constantinople, net, for the best quality. In Mitcham oils, *Peppermint* has experienced a further fall to about 25s. 6d. to 26s. 6d., but there is nothing doing. *Chamomile* has been bought at 40s. to 42s. 6d. Of the *Lavender* there is still a large quantity of young herb uncut; some new oil has been offered under 30s., while other growers are asking 40s., some even more. Distilling generally is in full activity, and

is likely to continue so for another week or two at least. This will afford some proof of the large bulk of crop, as in an ordinary season it would be finished. Under date of September 1, Messrs. H. G. Hotchkiss & Sons write to the *O. P. & D. Reporter* that there has never been such a failure in the peppermint crop as this year. This small yield, combined with the unprecedentedly small planting this spring, owing to the starvation prices discouraging the producers, will no doubt make the yield less than one-quarter of an ordinary crop. According to Messrs. Hotchkiss the yield of 96½ acres, owned by nineteen growers, which last year produced 2,435 lbs. of oil, will only yield 447½ lbs. this year. In London H.G.H. oil has further advanced, 13s. 9d. having been paid.

**OILS (VARIOUS).**—*Cocanut* very firm. Ceylon, 25½ to 26½; Cochin, 26½ for common up to 28½ for fine; Mauritius, 25½. *Cottonseed* oil steady at 19½ 10s. for crude, and 21½ 15s. for refined on the spot. *Linseed*—Spot, 19½ 7s. 6d. to 19½ 10s. *Palm oil* has advanced to 23½ for fine Lagos. *Petroleum* closes flat and lower—American, spot, 7½d. to 7½d.; Russian, 6½d. *Rape oil* easier—Brown, spot, 27½; refined, 28½ 10s. *Turpentine* again 1s. dearer at 31s. to 31s. 3d. for American on the spot.

**OPIMUM.**—From Smyrna we have received the following report, dated September 7:—The arrivals of new opium from the beginning of the season until date have been:—

	1883	1887	1888
	Cases	Cases	Cases
At Smyrna .. ..	2,212	291	2,232
„ Constantinople ..	1,382	241	908

There is no change in the position of the market, and inactivity reigns everywhere, although there are holders who, it is said, would gladly make concessions. It is also said that a fall of about 15 per cent. has occurred in the producing centres. It should be added, however, that the reports from Smyrna are not entirely in accord with the views prevailing in many quarters in London with regard to the opium crop. Although there is very little business doing here, the estimates of the crop are not by any means so high as they are in Smyrna, and it is especially pointed out (as we have observed before), that most of the new crop opium which has arrived here is of a very inferior quality.

**ORRIS ROOT.**—Only five serons dark shrivelled *Mogador* were shown and bought in at 16s. 6d. per cwt.

**POTASH SALTS.**—*Bichromate* steady at 4½d. per lb. *Chlorate* has again advanced, and 5½d. has been paid, while there have been heavy contracts for delivery next year. *Yellow Prussiate* 6½d. to 6½d., according to brand.

**QUICKSILVER** unchanged. The importers still hold at 9½, but second-hand holders offer at 8½ 14s.

**QUININE.**—A heavy business has again been reported during the week, and the German makers have advanced their quotations to 1s. 6½d. and 1s. 7d. per oz., but we have not heard of any business over 1s. 6d. per oz. The English makers do not seem to have had much faith in the rise, for *Howards'* quinine in bulk has been obtainable all along at 1s. 9d. for forward delivery. At to-day's public sales the "bull" party received a disagreeable shock, 10,000 oz. *Auerbach* quinine in 1,000-oz. lots being advertised for sale "without reserve," and sold the first lot at 1s. 3d., the remainder at 1s. 4d., with the exception of one at 1s. 3½d. per oz. In our last week's report on the cinchona market the names of the Brunswick and the Auerbach quinine works were transposed by inadvertence. The former works were by far the heaviest buyers at the auctions.

**RHUBARB.**—A rather large supply of rhubarb met with a moderate demand, part being disposed of at unchanged rates, though very steady for high dried. *Shensi*, good small druggists' root, sold at 3s. 2d.; bold, flat, fair coat, two-thirds pinky fracture, at 1s. 3d.; small to medium round, rather grey, at 11d. to 1s.; ordinary wormy, 7½d. *Canton*, common wormy, 5d. to 6d.; *High dried*, fairly good fracture, bold, heavy root, 1s. to 1s. 1d.; smaller ditto, 11½d. per lb.

**SAFFLOWER.**—On Tuesday 35 bales new Bengal "PDIM in heart" brand were bought in, 97s. 6d. per cwt. being suggested for first, and 90s. for second quality.

**SAFFRON** very firmly held, and it is thought here that still higher prices will have to be conceded before the new crop comes on the market.

**SANDALWOOD.**—Fifty-one bales bright yellow chips sold at 8*l.* 10*s.*; common dark realising 50*s.* per cwt.

**SARSAPARILLA** in fair demand. Sound grey *Jamaica* sold to-day at 1*s.* 8*d.* to 1*s.* 9*d.*; damaged at 1*s.* 5*d.* to 1*s.* 6*d.*; damaged *Red native*, 1*s.*; damaged to sound *Lima Jamaica*, 11*d.* to 1*s.* 3*d.* per lb.

**SCAMMONY.**—The Smyrna market is extremely firm, and the stock there has now shrunk to about 430 lbs. Fine to third quality is quoted from 26*s.* to 17*s.*, and skillep at 6*s.* per lb.

**SENEGA ROOT** firm at 2*s.* 1*d.* to 2*s.* 2*d.* per lb. for good bright Western. At the auctions 13 bales were bought in.

**SENNA.**—560 packages arrived this week from Bombay per steamer "Thames." At the auctions 328 bales *Tinnerelly* were partly sold at full prices, but there were very few really good packages. From 5*d.* to 6½*d.* was paid for medium to bold damaged specky but greenish to bold sound but yellowish leaves, 3¼*d.* to 3½*d.* for damaged to sound fair medium greenish, 2*d.* to 2½*d.* for ordinary small mixed colours to greenish but specky, and 1½*d.* to ¾*d.* for thin darkish flimsy to common leaves.

**SHELLAC.**—At the end of last week there were but few buyers in the market, and, although prices kept up fairly well, there was decidedly less backbone in the market. Sales were reported at 40*s.* per cwt. for A.C. *Garnet* spot. The public sales included—

Orange	525 cases, of which 450 were sold	
Garnet	—	"
Button	112	" 13 "
Total	637	" 463 "

Nearly all the orange lac offered was unworked. The first lots brought rather steady rates, but as the sale proceeded lower rates were accepted, and on the average there was a decline of 1*s.* per cwt. on *Second orange* lac, although *Fine orange* was very firmly held and button lac brought fully previous rates. The following were the prices:—*Orange*, fine pale BSSL, worked, 62*s.* refused; good bright second, rather red, unworked, 50*s.* to 51*s.* ditto fair to bright but cakey, 47*s.* 6*d.* to 48*s.* 6*d.*; dull dark to fair reddish and cakey, 45*s.* 6*d.* to 47*s.*; *Button*, fairly good pale firsts, 61*s.*, with sales at 62*s.* cash terms after the auctions. Further sales of *Garnet* lac, fair AC at 40*s.* per cwt. have also taken place subsequent to the auctions. The shipments from Calcutta to the United Kingdom in the first half of September have been 1,800 cwt. against 3,400 cwt. last year. The market closes firm with further sales of fine orange at 62*s.* and garnet AC at 40*s.* spot.

**SOY.**—Five casks *China* sold to-day at the recent advance of 1*s.* 4½*d.* per gallon.

**TAMARINDS.**—For fairly good new Antigua 21*s.* is asked. Other West Indian common and old sold at 10*s.* to 15*s.* 6*d.* per cwt.

**TEA.**—China market. The market is very firm for all grades except fine Monings. Sales this week have been remarkably light. We quote new makes curly leaf sort 8*d.* to 1*s.*—buyers are not likely to get better value for some time. Hoyune new makes on the other hand are less plentiful. Good teas may be had from 10*d.* to 1*s.*, but not much from 7*d.* to 10*d.* Old season's Kaisows, 3½*d.*; ordinary common Saryune or Soomoo, N.S. Saryune, 5*d.* to 7*d.* up to 10½*d.* for fine teas; Kaisow siftings 4½*d.* to 4¾*d.*; useful second crop Moning, 7*d.* to 11*d.* Assams sell fairly freely at the reduction noted last week, but are not taken very largely in the country. Good liquoring broken Assams have sold from 7¼*d.* to 8½*d.*, the beginning of the anticipated fall. Ceylons: Teas from 10½*d.* to 1*s.* remain fair value, and some very handsome broken Pekoes sell at this range. Javas have sold this week from 4½*d.* for leaf tea up to 2*s.* 6½*d.* for a very choice parcel.

**TURMERIC.**—At Tuesday's auctions a considerable quantity of *Madras* and *Bengal* turmeric was offered, but no offers were made for any lot.

**VANILLA.**—278 tins, mostly of ordinary quality, were nearly all sold at somewhat cheaper rates, low to common dry foxy, 9*d.* to 5*s.*; fair, 6*s.* 9*d.*; common chocolate, 3 to 7 inch, 3*s.* to 6*s.* 6*d.*; fair ditto, very fresh, 5½ to 7½, 7*s.* to 9*s.* 6*d.*; good, rather crystallised, 6½ to 7½, 11*s.* to 15*s.*; fine, 7½ to 8½, 16*s.* 6*d.* to 18*s.*

**WAX (BEES').**—*Jamaica* in good demand at very firm prices. Fine yellow and orange sold to-day at 6*l.* to 5*l.* 17*s.* 6*d.*, orange and red at 5*l.* 15*s.*; red, 5*l.* 12*s.* 6*d.*; brown and grey, 5*l.* 10*s.* per cwt. *Cape*, good pale and yellow, sold at 5*l.* 12*s.* 6*d.*, and dull grey *Australian* at 5*l.* 10*s.* For dark and wormy *Madagascar* 82*s.* 6*d.* was refused. A parcel of fine white bleached *French* wax in circular cakes, "beehive" brand, was withdrawn.

#### CHEMICALS IN THE NORTH OF ENGLAND.

**THE** past week has been somewhat excited, as there has been a decided advance in several chemicals both for prompt and forward delivery, and operations would probably have been heavier if it were not for the uncertainty respecting the proposed salt trust, and until this is settled upon some satisfactory basis buyers will be cautious in buying in quantity over next year.

**ACIDS.**—Tartaric has been quite neglected, and closes flat at 1*s.* 5½*d.* to 1*s.* 5¾*d.*, supplies at present being in excess of demand. Citric is also dull at 1*s.* 6½*d.* Oxalic is firm at 4*d.*, and sales are now being made. Boracic has attracted attention and is gradually hardening; 26*s.* 6*d.* to 27*s.* is asked on the spot, and 25*s.* 6*d.* per cwt. for forward delivery.

**BLEACHING POWDER** has been firmly maintained, and prices are very strong at 7*l.* 7*s.* 6*d.* to 7*l.* 10*s.* for softwood on rails and at 8*l.* for hardwood.

**POTASH SALTS.**—Bichromate has been in better demand at 4½*d.* per lb. Chlorate has been in request, and the market cleared of all offering at low prices, closing firm at 5½*d.* for prompt, and 5½*d.* freely paid for all next year.

**SODA SALTS.**—There has been a further decided advance in caustic soda both for prompt and forward. On spot, 6*l.* 5*s.* is asked for 60 white, and 7*l.* 5*s.* for 70 per cent. white, and 7*l.* paid for some quantity over next year, higher rates being now asked.

#### NOTES ON CHEMICAL PREPARATIONS.

(From Messrs. C. F. Böhringer & Co.'s Circular.)

**QUININE.**—While the Ceylon exports of cinchona bark are at present about 2,250,000 lbs. below last year's, those from the Malabar coast show a decided increase, the figures being:—

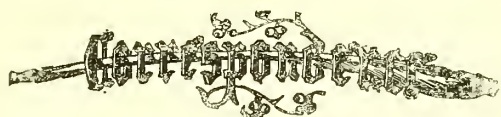
July 1, 1885, to June 30, 1886 ..	..	..	797,528 lbs.
" 1886, " " 1887 ..	..	..	272,048 "
" 1887, " " 1888 ..	..	..	1,070,160 "

A series of experiments made by Mr. B. Fevers, in the clinic of Professor Ungar, of Bonn, has again demonstrated the usefulness of quinine in the treatment of whooping-cough. In cases where quinine cannot be administered internally injections of easily-soluble salts (quin. ethylsulph., quin. binur. or carbamide) are recommended.

**SULPHURIC ETHER, SPIRIT OF ETHER, AND CHLOROFORM** are about to command higher prices. The spirit market, after months of depression, has become firmer during the last few days. This is partly in consequence of the advance in all kinds of grain, which does not only influence the price of potatoes, but will also diminish the competition of the Russian distillers, who principally distil from corn, and partly owing to the prospects of renewed activity in the exports to Spain, which would cause a great diminution of the stock on our market and a corresponding advance in price.

**GLYCERINE.**—The manufacturers of crude glycerine have advanced their quotations, and it seems advisable not to tarry any longer in covering requirements for the next six or eight months.





### Memoranda for Correspondents.

*Always send your proper name and address; we do not publish them unless you wish.*

*Write on one side of the paper only; write early; and devote a separate sheet of paper to each query if you ask more than one, or if you are writing about other matters at the same time.*

*If you send us newspapers, please mark what you wish us to read.*

*Ask us anything of pharmaceutical interest: we shall do our best to reply.*

*Before writing for formulae consult the last volume, if you have it.*

*Letters, queries, &c., not noticed in this issue will, if possible, be attended to next week.*

### Laboratory Notes.

SIR,—As I was unable to be present at the Conference, perhaps you will kindly allow me to offer a few words of comment upon one or two points raised in the discussion which followed the reading of my paper. With reference to syrup of phosphate of iron, the object aimed at I take to be the production of a palatable syrup containing phosphate of iron in permanent solution. The formula given in my paper yields such a product. As shown by the experiments made, it contains just as much free acid as is necessary to prevent the phosphate being thrown out of solution by the water present in the preparation, and no more.

The quantity needed is exactly half the amount ordered in the B.P. The latter syrup contains 10 fluid oz. syrupy phosphoric acid in 96 fluid oz., and the former 5 fluid oz., 1 oz. being used up in converting the iron into ferrons phosphate.

It is advisable that the wire employed should be as fine as possible (I generally use No. 35), and if not perfectly free from oxide it should be washed in dilute pure hydrochloric acid, and afterwards rinsed with water.

If the process given in my notes be carefully followed, a syrup is obtained which is quite free from ferric salts, and will keep much better than a more acid preparation.

If a smaller quantity of acid is used, deposition of ferrous phosphate (not ferric phosphate, as stated by Mr. Groves) takes place. It is true, however, that the B.P. syrup, if kept for some time, becomes highly coloured and throws down a deposit of ferric phosphate.

With regard to the tasteless liquid extract of cascara, I believe the great difference of opinion which exists on the subject of its activity is due to two causes:—

(1) The variable quality of commercial cascara bark.

(2) Variation in the process employed for its extraction.

The statements contained in my paper refer only to the extract made in accordance with the process therein contained, and from bark of good quality.

The question as to the activity or otherwise of the tasteless extract was solved in the usual way. In the solitary instance in which it seemed to fail the lack of action was found to be attributable, not to the inactivity of the extract, but to the obstinacy of the patient. No doubt the same is the case in many other cases. In the process of extraction combination takes place between the resins contained in the bark and the magnesia, and the latter is found in the extract in considerable quantity.

Since the publication of the "notes" my attention has been drawn to an article in the *Pharmaceutical Journal*, III. vol. xviii. page 804, reprinted from the *American Journal of Pharmacy*, and containing an account of an examination of cascara bark by Meier and Webber. These chemists succeeded in isolating three resins possessing laxative properties, a crystalline bitter principle possessing tonic properties, a glucoside, a peculiar ferment capable of inducing decomposition of the glucoside with production of the bitter principle, and other substances. The article is a valuable one, and will well repay perusal by those interested in the subject. I cannot do more in this letter than give the conclusions to which the authors came after an exhaustive

study of the whole subject. Their conclusions are as follows:—

(1) The resins are not bitter, and form soluble compounds with the alkalis and alkaline earths.

(2) The glucoside, though the source of the bitter tonic principle, is itself devoid of bitterness.

(3) The glucoside is capable of undergoing decomposition in the normal gastric juice of the stomach with development of the bitter principle.

(4) It is therefore possible to prepare a product from cascara comparatively tasteless, and yet containing all the elements to which both the tonic and laxative properties are due.

It is unnecessary for me to offer any comment upon the above conclusions, but I cannot refrain from saying that they afford striking confirmation of the experience of the majority of those who have made trial of the tasteless extract of cascara, which is that it is as equally potent and valuable preparation as the bitter extract.

Yours faithfully,

Buxton, September 18.

ROBERT WRIGHT.

SIR,—In his "Notes on Conference Subjects" (THE CHEMIST AND DRUGGIST, September 15) Mr. G. A. Grierson says syr. ferri phosph. eo. made from iron wire "deposits continually." Such is not my experience. I find it keep, in well filled bottles, bright and clear for twelve months, and even in partially filled bottles the deposit is not so great as when made from the precipitated phosphate. I regret that the Ph. C. did not adopt a formula for syr. ferri hypophosph. made direct from iron wire, instead of the one they have, which I am sure will prove a failure.

Faithfully yours,

Dawlish, September 19.

G. J. CUNLIFFE.

### The Use of Mayer's Solution.

SIR,—I observe that Mr. Grierson, in recording his results regarding the exhaustion of ipecacuanha, expresses, by means of a mark of exclamation, astonishment that his non-acetic percolate required just the same amount of Mayer's solution for complete precipitation that the acetic percolates did. I am not surprised at this, for it is a well-recognised fact that the existence of free acetic acid in any alkaloidal solution materially affects, in some cases even prevents, the action of the potassium iodo-hydrargyrate upon the alkaloid. Emetine is not, as far as I am aware, an exception to this rule, and I would suggest that Mr. Grierson should repeat his first two estimations in the manner adopted by Mr. Wright, viz., evaporate a portion of the percolate to dryness, and dissolve the acid in distilled water. Then add the Mayer.

Yours truly,

CACODYL. (129/6.)

P.S.—Is it not sulphuretted hydrogen that is produced in syr. hypophos. eo.? How could phosphoretted hydrogen arise?

### Tasteless Cascara Sagrada.

SIR,—Allow me to add my experiences to those of Mr. Grierson in connection with the tasteless fluid extract of cascara sagrada, which in my case was ineoperative. For the purpose of discovering if the bitter principle were regenerative, I added excess of dilute hydrochloric acid to (a) a portion of the exhausted bark, (b) a little of the fluid extract, and (c) a mixture of the two. After standing twenty-four hours, in no case was bitterness produced. Boiling the ordinary bitter extract with very dilute sulphuric acid did not discharge its bitterness.

Am I right in inferring from these results (1) that the bitter substance partakes of the nature of an organic salt which, on being saponified by alkali, undergoes as complete and final separation as takes place when oleic acid and glycerine are separated by means of soda? and (2) that it is not a glucoside?

Yesterday I made the curious discovery that about half an ounce of the official preparation, which has been standing for some time at the bottom of a well-stoppered 16-oz.

bottle, has lost its distinctive bitterness, retaining only a somewhat pleasant astringent flavour. Has this been observed by any other of your readers?

Yours truly,  
A. L. MEADLEY.

#### Solubility of Saccharin.

SIR,—Having had occasion to repeat the experiments of Mosso with respect to the solubility of saccharin in alcohol and in water, I find a considerable divergence in our respective results. It is, perhaps, to the benefit of your readers that this should be made public. I should add that my determinations were made upon the pure product as now manufactured, and which corresponds with what is actually being used by chemists throughout the kingdom.

#### *Solubility of Saccharin in Alcohol.*

Absolute Alcohol by Volume per cent.	Solubility per cent.	Grains per Gallon	Gallons required to dissolve 1 oz. of Saccharin
10	0.39	273	1.601
20	0.36	252	1.734
30	0.68	476	0.918
40	1.23	881	0.507
50	1.66	1,092	0.400
60	2.39	1,673	0.261
70	3.07	2,149	0.203
80	2.93	2,051	0.213
90	2.81	1,960	0.223
100	2.38	1,666	0.262

1 oz.=437 grains.

Pure saccharin is soluble in water at ordinary temperatures to the extent of 0.415 per cent., and soluble saccharin under the same conditions to the extent of 36 per cent.

1 Fenchurch Avenue, E.C. Yours, &c.  
September 18. ALFRED GORDON SALAMON.

#### Extraction by Pressure.

SIR,—On the appearance of Dr. Symes's paper on the above subject, read before the Conference, his method appeared so rational and the principle of it so much allied to one which in its crude condition I had been revolving for some time, that I immediately instituted some experiments with the intention of confirming his results. Eight lbs. of senna in about No. 20 powder were macerated 24 hours with 128 oz. of a mixture containing equal parts rectified spirit and water. One fourth was separated and packed in five percolators suited for re-percolation; the remaining three-fourths—representing 6 lbs. senna and 96 oz. menstruum—was placed in a press-bag and subjected to a pressure of about 20 tons in a hydraulic tincture-press. The amount of fluid expressed in the second case amounted to 52 oz. In appearance it was bright, and of about the consistence that would be expected in a fluid extract; in physiological action it was most efficient, half a drachm acting as a decided purgative in a by no means susceptible patient; strange to say, it was quite free from griping action. The mass was then broken up and 52 oz. water added; pressure was applied as before, but no more liquid could be induced to come. On the addition of 80 oz. more water the result was the same, although the material appeared to be quite moist. It was thought that the clogging might be due to the precipitation of mucilaginous matter by the mixture of a spirituous and an aqueous menstruum; 2 lbs. of senna were therefore macerated with 2 pints of water, and subjected to pressure as before, but the two could not by any means be induced to separate. It is evident that the retention of water in both cases is due simply to the great affinity for it possessed by the mucilage of the leaves. It is also evident that the recovery of the spirit by displacement with water is impracticable, and that instead of adding water to the marc, that displacement should be effected by the initial menstruum. With this modification the process is almost perfect, because the manufacturer will readily devise a process for the recovery by distillation of the "inexpressible" spirit.

To the first of the percolators containing the fourth, removed before expression, was added water; result, absolute

clogging. To another was added the spirit and water mixture; displacement in this case took place pretty readily, but the quantity of spirit used was so large that the process was discarded in favour of pressure. A third percolation experiment was tried, using water as the initial as well as displacement menstruum, but in this case also clogging took place at once.

It is now universally recognised that absolute displacement is a physical impossibility, and for this reason only the process of extraction by pressure should possess a great advantage over that of re-percolation, much as the latter has been lauded of late. I am now prosecuting some experiments with other substances in the same direction, and reserve further opinion until they are completed.

Sheffield, Sept. 18.

G. A. GRIERSON.

#### Pharmacy Reform.

SIR,—Your correspondents teem with suggestions for bettering our position—here is a practical one.

Let a meeting of chemists be called to consider a series of resolutions; then, when a unanimous decision has been arrived at (if such a thing is possible) as to how much protection we deserve or can obtain, let a deputation be appointed to wait upon a member of the Government, and let our grievances be laid before him. His reply would clear the ground for future Parliamentary action, and would too, I fancy, completely justify the Pharmaceutical Society in the course it has wisely, and perhaps of necessity, followed.

PHARMAKOS. (131/58.)

SIR,—As your correspondent "Viator" says, I think that the majority of our fraternity will agree that protection for chemists is the only thing that will secure for us the position which as a specially educated and examined body we have a right to expect. The protection we need is "that registered chemists shall be the only persons legally (by examination from the Pharmaceutical Society) qualified to dispense medicines." But there are some who say that we require not protection any more than other trades and professions. But are not others protected? I think they are. The doctors we know are well protected by law; provision dealers (grocers, bakers, butchers, &c.), drapers, and others by the requirements of the people. It is necessary for the multitudes to eat and be clothed in order to live and dwell among civilised society. Now, if the grocer can sell the crude drugs, official and official preparations, and the doctor can supply the medicine from his own establishment, what is left for the general chemist? Simply nothing—except ample time for reflection. To briefly state the position: The doctor takes the dispensing, or nine-tenths of the profit on it; the grocer the drugs, patents, and mineral waters; and the draper, &c., the perfumery and toilet requisites. With regard to price and profit, 10 per cent. on all drugs would amply repay a grocer who deals in them to any extent, and has a thousand and one things else wherefrom to derive his income. So that if the chemist cannot get the monopoly of the dispensing, for which he fees the Pharmaceutical, passes his examinations and spends his years in educating, he will simply, in the future, pass into a state of commercial nonentity. This may be a little overdrawn for the present, but the decreasing trade and decreasing profits show that it will soon be more than apparent. We have a social status as a semi-professional community to preserve, and it must be done in some way. We are not all geniuses, Bengers nor Burroughses, that we can afford to look with smiling complacency on the stores and our cutting brethren. I hope I am not occupying too much of your space. Of course this is only one phase of the question, and we have had many discussed in your valuable columns, but I think we may hope that by the multiplicity of ideas we may find some which will have practical utility in effecting a change for the better in our fast declining trade.

Yours truly,

Chard Street, Axminster.

W. H. W. PECK.

SIR,—An Ex-A.P.S. has taken the trouble to express his opinion on this subject, for which I am personally obliged. We only want a few hundreds more to oblige us, and then



we shall be able to see how the wind blows, and how far the suggested move is likely to be supported.

Agitation is costly, consumes much time and energy, but may be justified in the end. I believe that the view taken by "Viator" and some others of your correspondents is largely held among the members of the trade. We want good leaders: can we not find them? One man in London, Bristol, Birmingham, Newcastle-on-Tyne, and Edinburgh, working diligently in each district, would soon gather a consensus of the *pro* and *contra*. Provincial and local associations, commercial travellers, and the wholesale houses have the means of conducting a crusade, and your valuable and widely-read journal may publish results from time to time. But the issue must be clearly and carefully laid before the chemists of the country, if we are to find out the real sentiments of the majority.

May I suggest, Mr. Editor, that you take an early opportunity of offering a prize for an essay which shall be scattered broadcast over the country, embodying the idea of a new trade association for making the Pharmaceutical Society identical with the trade?

With this simple issue before us, we can but say yea or nay to it. I can see no simpler plan for the creation of an interest which can be used as an engine to act upon the Legislature.

Some men advise us to give up the Society altogether and allow it to become bankrupt. I feel sure that such a thing is quite out of the question. The Society is chartered and established by several Acts of Parliament, and is part and parcel of the glorious British Empire. The Society has life of itself, and is not subject to the caprice of the retail trade—Parliament alone can decree its dissolution. It may become a smaller corporation by the withdrawal of individuals; on the other hand, it may be (as I believe it was intended to be) the life, voice, and hand of the profession.

Let us knock heavily at its doors, demand a voting franchise, and exhibit a united front to the powers that be. In past years, when we were technically uneducated, we found favour; now, as an educated body, are we less worthy of a few more crumbs of protection and paternal care? Have we made the best use of our opportunities? I think not.

Yours truly,

"HEDER."

SIR,—The vituperation accorded generally to "Cutters" by your correspondents seems to me rather misconceived. It is commonly said that an 8 oz. mixture ought to fetch 1s. 6d. because of the skill required in dispensing it. But when it is remembered that the average actual dispenser of the same receives not more than about a penny (4d. per hour) for compounding it, the public may well deem such a charge excessive.

The reform which appears to me (an assistant) most pressing is the shortening of the hours of labour, which, in my humble opinion, will only be brought about when employes are paid by the hour in place of the present system of payment by the year. This, I contend, would be a practical "move forward," and far more beneficial to true pharmacy than the plan usually sought for of bleeding the public.

Trusting this will be read in the spirit in which it is written,

I am, sir, obediently yours,

A VERY MINOR MAN. (131/53.)

#### Chemists' Profits.

SIR,—I do not know what "T. B.'s" idea as to a "special quotation" for oxalic acid is, but, to my mind, if he could have sold 28 lbs. of it at 7d. per lb. he would have been doing much better work than in writing to your esteemed journal complaining that in such a transaction he cannot get more than 40 per cent. profit, or 25 per cent. if he sold it at 6d. per lb. The list price certainly is 5d. per lb., but he will find that by taking 28 lbs. he can get it at 4½d., less 5 per cent., carriage paid. May I ask what "professional skill" it requires to sell 28 lbs. oxalic acid at 7d. per lb.? "T. B." says, "I suppose it is what we must all come to." He is quite right; we shall all "liquidate as a profession" if we will not conduct our business on business principles. If there is one thing in your journal which rouses my ire, it is the unmanly howls and

shrieks of some of your contributors just because they cannot get the old-fashioned high prices, but I am pleased to observe during the last few weeks that a healthier spirit is beginning to prevail, and that not a few of the trade are bracing themselves up to meet the competition instead of allowing themselves to be quietly "snuffed out." Your leading article of September 1 hits the nail square and fair on the head, and the sooner we, as a body, move with the times the better. But, after all, I should like to see this question debated in your columns: "Was 'T. B.' justified (according to the present state of business) in refusing to trade at the prices named?" Of course I acknowledge that he has a perfect right to refuse to sell if he thinks the price inadequate, but was it expedient? I am, sir, yours faithfully.

"SEVENPENCE A POUND."

"Lewis," "W. S.", and others send late letters commenting on "T.B.'s" ideas in a similar strain.

SIR,—Might I ask Mr. C. S. Ashton the cost of the mixture which at 9d. return bears 100 per cent. profit?

GENTIAN. (74/131.)

SIR,—I have two polite letters to reply to this week through the columns of your esteemed journal.

I must first thank both "Heder" and "H. K." for the kind and complimentary way in which they have referred to our house and goods, which gives us an additional obligation and pleasure to do our best to be worthy of the confidence and esteem of the trade.

Replying to "Heder," we would be glad if the sale of our products could be restricted to chemists, but while we solicit no orders from grocers and stores, they get our goods, just as they get *everything else* in the line of goods regularly stocked by chemists. Therefore, if chemists are going to object to goods because they are dealt in by such competitors, they will have to object to every single article which they handle, for the stores have all of them, and grocers can get all or nearly all, and then "go the whole hog" by employing a qualified dispenser.

Moreover, the cutting complained of is not at all confined to our goods, or even to the sale of drugs and poisons, but applies to prescriptions for mixtures also, as shown by your letter of complaint against a chemist who had charged but 3d. for a 6d. prescription. Turning to the preceding page of THE CHEMIST AND DRUGGIST of same date, a chemist complains of another who sells oxalic acid at 6d. per lb., which costs 5d. of the wholesaler in London. Therefore those who complain of cutting find it common in the sale of poisons as well as in dispensing prescriptions; and I dare say cutting prevails to a greater or less degree in every other calling in life. If a chemist disgusted with cutting betakes himself to the medical profession, he will have left at his door circulars from M.D.'s offering to supply medicine with advice for 6d. or 1s.; if to the grocer's trade, he will have to sell sugar at less than cost, and if he refuses to supply sugar he will lose all his customers. If he would be a draper he must sell in close margins, and the manufacturer will not take back surplus and unsaleable stock, exchanging it for new and saleable. Even solicitors and barristers are often known to take most humble fees, and we manufacturers have to cut prices pretty closely, and can only supply goods at present rates by producing them on a large scale.

While strongly opposed to cutting among chemists and to the competition of stores, it is something which can be met, not so much by cutting as by the chemists showing that they are in advance of such concerns through keeping ahead of them in the introduction of new and good things in pharmacy. The doctors and public like to be up to the times, and to have the benefit of every improvement. They will regard the chemists who show them such as their friends, far more than those who put forward inferior lines of goods or who merely cut prices. Many chemists who cut on drugs and patents inform us that they do not find it necessary to cut on goods of our make, which are cheap enough at the regular prices and which are introduced to chemists (and to doctors, who direct patients to chemists for them) and hence are not

soluble to be asked for at grocers and stores as are staple drugs and patents which are publicly advertised.

I must not trespass further on your space this week, but if you will allow me I will reply to "H. R." later on.

Yours truly,

September 19.

S. M. BURROUGHS.

S.—I agree with your correspondent at Buxton that, if we are not guided by common sense in our business transactions, failure will be the result, and then it will be of no use to grumble. But I think he does not distinguish things which differ. A chemist is a trader, but he is also something more, and he should engage in his professional work of dispensing and compounding *con amore*, feeling a pleasure and a pride in accomplishing the best results, knowing that he will be paid some moderate sum for his time and trouble. If a chemist wishes to sell so called patent medicines and other packed goods, he must charge the ordinary prices of the neighbourhood; but in the matter of dispensing and the making of preparations he should establish and maintain a position above the trader, and demand and receive some remuneration for skilful and conscientious service.

I will give an instance which does not bear out the arithmetic in the letter. I have dispensed occasionally an 8-oz. mixture, tablespoon doses, for a customer, who told me lately that he was charged for it at Buxton 9d. or 10d. Now this mixture contains 2½ oz. of tinctures and spirits, made up to 8 oz. with a fresh infusion. The cost of the ingredients would be about 7½d., and 1d. for the bottle, together 8½d., thus leaving a profit of ½d., or perhaps 1½d., as the remuneration for time in copying, making infusion, &c. Certainly there is no 100 per cent. profit here, and I think my charge of 1s. 6d. perfectly fair and more sensible.

The Pharmaceutical Society has failed to elevate the trade, don't let any of us who are engaged in it be eager to decide it.

I am, sir, yours obediently,

Bough.

RICHARD GRIFFITH.

### "Let Us Help One Another."

S3.—We, as a rule, are at cross purposes playing—general as a body of tradesmen; we are jealous of each other. Why not try and help one another rather than rush at each other like bulldogs? I would suggest a means of reciprocity. Nearly all chemists issue a circular, almanack or similar publication once a year. Each chemist (I take it) has a speciality which would not interfere with his neighbours.

I would recommend one chemist giving another chemist in another town one page in his circular in return for one in his own. Such matter not to clash with his own. I shall be pleased to make such exchange again, which I have found profitable to both parties.

Yours faithfully,

W. R. FOWLER.

12 Queen Street, Portsea, September 18.

### Label Gumming.

DEAR SIR,—Replying to a correspondent, "E. J. A.," in your last issue, you say, "Dextrine is generally used by printers for making label mucilage." As the representative of one of the leading medical label houses (Ford, Shapland & Co.) I beg to state that we use nothing but the purest gum for the backs of all labels printed by us. I enclose you a recently printed sheet for your examination.

Yours truly,

September 15.

HENRY J. DALGLEISH.

### "Prescribing Chemists."

SIR,—Many chemists, myself included, were apprenticed to local doctor, who was an M.R.C.S. and L.S.A. Most of the gentlemen take apprentices. Until lately the Apothecaries' Society would not admit a student to their examination unless he gave proof that he had served an apprenticeship of five years to one of their licentiates. What do these gentlemen teach these apprentices in return for their time and services, as well as the premium paid by their fathers! In my indentures these words appear: "And the said master, in

consideration of the premium, labour, and service of the said apprentice, shall find him sufficient meat, drink, and lodging, and will also teach and instruct or cause to be taught or instructed, by the best means that he can, in the art of surgeon and apothecary which he useth."

It appears from this that the master is upon the horns of a dilemma. Either he did teach according to the indenture, and therefore the apprentice knows something about prescribing, or he did not instruct as the indenture required him; in the latter case the master obtained the premium, labour, and services upon false pretences. I am aware the mere knowing does not give the apprentice a legal status to act as an apothecary, but it does combat the statement of the medical correspondents that a chemist can know nothing about diagnosing diseases and prescribing.

ROBERT OWEN FITCH, M.P.S.G.B.

### DISPENSING NOTES.

*The opinions of practical readers are invited on subjects discussed under this heading.*

#### Hair Lotion.

SIR,—I had the following to dispense this evening:—

Ol. ricini .. .. .	3ij.
Glycerini pur. .. ..	3iss.
Tr. canthar. .. .. .	3j.
Ol. bergamot .. .. .	3iv.
Sp. coloniensis .. ..	3iv.
Sp. ethyl. .. .. .	q.s.

To make a clear, transparent solution. To be used for the scalp as directed every morning.

What ought I to have used for sp. ethyl., and what would be the probable quantity required?

COUNTRY CHEMIST. (124/32.)

#### A Thick Mixture.

121/70. *Tyro* calls our attention to the following prescription, from Beasley's "Book of Prescriptions," ordered by Dr. Hooper in chronic bronchitis:—

Tinct. benzoin. co. .. ..	3ss.
Acacia pulv. .. .. .	3ss.
Tragacanth. pulv. .. ..	5j.
Aquæ cinnamon. .. ..	3i.
Aquæ .. .. .	3iiss.

Misce.

[This formula provides a pasty mixture, which was probably never intended by the prescriber. The only improvement which we can suggest is the omission of the tragacanth.]

#### Collodion and a Green Extract.

SIR,—How can the following be dispensed to yield a homogeneous green paint? We find it separates into two layers, one containing the chlorophyll, the other being brownish in colour:—

Ext. belladonnae .. ..	3ij.
Collodion flexible .. ..	3ij.
Ext. pigment. m. d. a. ..	

Yours truly,

R. E. N. (19/38.)

[The water-soluble substances in the extract are the cause of the unsightly appearance of this preparation. The best plan to adopt is to treat the extract with 1 oz. of clean methylated spirit, filter, evaporate, and dissolve in the collodion.]

#### Chlorodyne.

129/69. *Inquirer* wishes to know whose "Chlorodyne" should be used in dispensing when it is not stated.

[A general statement of opinion on this point would be interesting, and we shall be glad to record a post-card vote, if our subscribers will take the trouble to reply.]



### Solution of Citrate of Iron and Quinine.

132/25. *J. T.* writes:—"This solution, kept ready for dispensing, soon produces a fungus. What will prevent it?" There are some practical remarks regarding dispensing solutions in "The Art of Dispensing" (pp. 35-37). From this we quote: "In many instances concentrated solutions keep much better than weaker solutions. Quinine and iron citrate solution is a notable example, a solution of 1 part in 2 keeping for weeks, while a weaker solution quickly becomes bad."

### Bismuth and Sodium Bicarbonate.

134/13. *A Dispenser* (Birkenhead) and *Hederal* (133/61) write regarding our reply to "An Apprentice" last week. We may state that the nature of the reaction between the two salts, and the best method of dispensing mixtures containing them are fully explained in "The Art of Dispensing," pp. 154 and 156. "A Dispenser's" method of overcoming the difficulty is practically the same as therein given. "Hederal" states that he has never found the following mixture explode:—

Bismuth. subnit.	..	..	..	..	5iiss.
Sodæ bicarb.	..	..	..	..	3iiss.
Liq. strychnie	..	..	..	..	5j.
Vin. peptici	..	..	..	..	℥ss.
Glycerini	..	..	..	..	3j.
Inf. calumb. ad.	..	..	..	..	3viij.

M.

To this we must add—

Recipe—*Cum grano salis.*

*W. D. G.*—In the absence of information as to whether the deposit *grew* in the solution or was formed at the time of dispensing, we should regard it as a mixture of fatty and pectinous matter from the *nux vomica* and gentian. It is of such a nature that the mixture should be filtered. See note on gelatinous mixtures in the "Art of Dispensing," p. 133.

### LEGAL QUERIES.

21/130. *R. H.*—A month's notice on either side is customary between chemists and their assistants.

70/132. *Dambose* says:—A is a grocer in business alone; B, a qualified chemist. It is A's intention to divide his shop, keeping the one side to his own business, the other to the business of B. A and B do not wish to go into partnership, but that B shall simply be the manager of the dispensing and drug department, and receiving a yearly salary. How can this arrangement be best carried out with reference to name appearing outside the shop? also as regards dispensing labels and poison labels?

[A has no right to keep a shop, or a part of a shop, for the sale of poisons at all. His employment of B will not make such a business legal. He would be equally liable if he went into partnership with B.]

66/130. *Duboisine*.—A person licensed to sell patent medicines may sell them with one licence in different towns, but he is required to state, when he takes the licence, where he will sell the articles. (2) You ask us whether any chemist may use the title "Linen Glaze," and you say that B states that he has registered the title. We presume it is "B's Linen Glaze" which is registered. We should not expect that exclusive proprietary right would be given to the words "Linen glaze" simply.

3/134. *C. S. B.*—Veterinary medicines are not subject to medicine-stamp duty, and may be sold without a medicine licence.

36/138. *C. L.*, who had been in a dispensary five years, was engaged by "M. D." in London, and discharged in a day or two on the ground that he had not had proper retail ex-

perience. He asks if he can claim a month's salary, and other questions. He sends the correspondence. We find no stipulation in the correspondence for a month's salary, but it is probable that the judge would allow "C. L." something for the time he was there by way of *quantum meruit*. The case need not be entered in a metropolitan county court, part of the cause of action having arisen at "C. L.'s" residence. There is no necessity to wait a month. The action can be commenced at once. It is usual for an infant to sue by his next friend, who need not necessarily be his father; but as this is a case of suing for wages, a next friend is unnecessary. "C. L." can, therefore, commence the action in his own name under the County Courts Act, 1856, which provides as follows:—"And be it enacted that it shall be lawful for any person under the age of twenty-one years to prosecute any suit in any court holden under this Act for any sum of money not greater than twenty pounds which may be due to him for wages or piece-work, or for work as a servant, in the same manner as if he were of full age."—9 & 10 Vict. 95, s. 64. So far as can be seen from the correspondence, &c., the attendance of the father as a witness might be necessary to prove the writing and postage of the letter to defendant. The judge has power to allow the expenses of all witnesses, including travelling expenses. It is always usual to allow the plaintiff only expenses out of pocket. Other witnesses are compensated for their loss of time as well.

68/132. *J. W.*—If your name is on the list of persons qualified to serve on juries, you should make objection to the overseers. Subjoined to the list you should find a statement as to the place and time where objections will be heard.

### MISCELLANEOUS INQUIRIES.

*A large number of correspondents ask us for formulæ which have already been published in this journal. It is not fair to more careful readers that we should frequently repeat such information, and so long as the back numbers containing the formulæ or replies required are in print we must decline to do so. Back numbers of our weekly issue can be obtained from the publisher at 4d. each.*

### Books.

130/18. *Walter Price*.—**Brewing**.—The following are some of the works which are recommended by the Central Institute:—Briant's "Laboratory Text-book for Brewers," E. R. Southby's "Practical Brewing," and Shützenberger's "Fermentations" (International Scientific Series).

129/29. *Vet.*—In our Diary for 1883 there was an excellent **Veterinary Treatise** specially suited to the requirements of chemists. We cannot supply the Diary, but you may get a copy through the Exchange column. A very useful book is "The Farmer's Veterinary Adviser," by James Law (Jack, Edinburgh, 10s. 6d.)

129/62. *T. Wilde*.—Books on **Massage** have been written by Dr. T. Stretch Dowsie (Baillière, 2s. 6d.), Dr. H. Tibbets (Churchill, 4s.), and Dr. William Murrell (Lewis, 4s. 6d.).

128/26. *Cocaine Hydrochlor.*—Wills's "Materia Medica" contains coloured plates of the more important drugs. This would suit your purpose.

133/45. *R. Jeffrey & Son*.—Piesse's "Art of Perfumery" is the best book on the subject which is published (by Trübner); but you will find the papers on perfumery which we have published within the last four years to be, if anything, more practical.

125/62. **Copying Ink**.—Sugar is the best thing to add to ordinary ink to make it copying. It does as well as anything.

124/72. *A. E. Smith*.—You will find the most complete published collection of **Chemical Tricks** in this journal for December, 1886. We do not know the illustrated sheet of eye sections you refer to.

124/37. *Capsicine*.—Write to any of the houses who are manufacturers of essences (see the classified list of advertisers in this issue).

124/38. *Tenax* has not sent his name and address, nor has *Rural* (124/43).

124/48. *J. N. Q.*—The stains of logwood may be removed from the hands by sponging with water acidulated with hydrochloric acid, then with a weak solution of chlorinated lime.

124/45. *Statin*.—Alum is not a successful substitute for tartaric acid in gazogene powders.

124/56. *Corn Cure*.—Water-softening Powder.—Slaked lime, 1 part; dried carbonate of soda, 2 parts. Mix.

124/71. *H. S. Dunn*.—The paper by Mr. H. N. Draper on the preparation of decolorised solution of iodine is printed on page 564 of our 1885 volume. Amongst the methods which he suggests is to agitate a chloroformic solution of iodine with an aqueous solution of resorcin (the latter being in excess) until the iodine is wholly absorbed by the resorcin. The aqueous solution is then to be separated, and is to be used as decolorised iodine. The process was patented.

124/1. *Pip. Cayenne*.—We published an American formula for Cyclostyle Ink in our last volume, page 797, but an agent for the cyclostyle subsequently stated that it would utterly spoil the apparatus.

124/16. *Crinion & Co.*—Ordinary baking-powder (bicarbonate of soda, 10 oz., and tartaric acid, 8 oz.) may be used for making self-raising flour.

120/45. *Inquirer*.—The Liniment for Headache appears to be a solution of oil of amber, 5iv.; oil of cloves, 3 minims; and camphor, 10 grs., in 2 oz. of methylated spirit. The quantities are approximate.

121/42. *Viator*.—Worm in Lambs' Throats.—The dose which you send consists of 2 drachms of rectified turpentine and 3 drachms linseed oil, with about 20 grains of ferric chloride.

120/46. *F. Barry*.—(1) A solution of soap for shaving-foams might be made from soft soap dissolved in a mixture of water, 5 parts, and glycerine, 1 part. Perfume with rose or Ylang-ylang oil dissolved in a sufficiency of spirit. (2) The ointment which is said to be an unfailing Specific for Eczema consists of 1 part of precipitated sulphur and 2 parts of lard.

125/36. *Cymro* says (1) he should like to know whether Salts of Lemon and Salts of Sorrel are the same thing. He used to sell in all previous situations sal acetos for both. But where he is at present sal acetos is sold for salts of sorrel only, and a mixture of sal acetos and cream of tartar, 2 parts of the former to 1 of the latter, as in Gray's supplement, is sold for salts of lemon. [Some chemists sell nothing else than the diluted mixture, and some the pure sal acetos, no matter whether salt of sorrel or salt of lemon is called for. The matter is one upon which an expression of opinion by our readers would be valuable.] (2) The green colour of the sample of euonymin is due to sap green. Is questionable if there is any unmixed euonymin to be given in the powdered state. (3) As most cements contain organic material, any articles which have been repaired with them quickly disintegrate when exposed to strong heat. The formula given on page 259, or a mixture of calomel and mucilage.

127/64. *C. A.*—Schlippe's Salt is a double sulphide of antimony and soda, of doubtful composition, but supposed to be represented by  $\text{Na}_3\text{SbS}_4 \cdot 9\text{H}_2\text{O}$ .

129/32. *D. W. E.*—Brilliantine—

Castor oil ..	..	..	..	..	3ii.
Almond oil ..	..	..	..	..	3xlv.
Glycerine ..	..	..	..	..	3vj.
Jockey club ..	..	..	..	..	3iss.
Rectified spirit to	..	..	..	..	5iv.

Mix.

128/73. *Vera*.—We do not have particulars regarding the Baltimore College of Pharmacy, and would advise you to write to the secretary to the college. See reply to "Menthol."

129/44. *Menthol*.—Pharmacy in the United States.—There is not one pharmacy law common to all the States. The following particulars may be useful to you, as very similar regulations exist in those States where pharmacy is regulated by statute. *New York*.—The Act came into force in 1872. Under it only registered pharmacists (graduates or licentiates in pharmacy) may "open or conduct any pharmacy or store for retailing, dispensing, or compounding medicines or poisons in the city and county of New York." Graduates in pharmacy must serve four years in a store, and obtain the diploma of any U.S. college of pharmacy or "some authorised foreign institution." Licentiates of pharmacy are those who pass a satisfactory examination before the New York Board; also foreign pharmacists who present satisfactory credentials or certificates of their competency and qualifications to the said board. Junior assistants or apprentices in pharmacy are not permitted to prepare physicians' prescriptions until they have become graduates or licentiates in pharmacy. The four years' experience in dispensing applies to all who enter for the examination for the licence. The board exacts fees both for the examination and simple registration. The examinations are not more stringent than the Minor.

128/65. *Nemo*.—Acidulated Taraxacum and Podophyllin.—The formula is as we received it, but you may add 5ij. of tr. podophylli and filter.

128/27. *Carlo*.—Petroleum may be deodorised by treating it with strong sulphuric acid, shaking occasionally in the course of twenty-four hours; then decant, and wash with water containing a little alkali.

127/67. *C. F. S.*—Ten grains of antipyrin generally relieve a sick headache in a few minutes.

124/47. *Styrax*.—The only formula for Calf Meal which we have is as follows:—Ground linseed (fresh), 7 lbs.; barley meal and wheat meal, of each 14 lbs.

130/65. *S. Y.*—Face Rouge is made by triturating well together 1 part of the finest carmine with 2 parts of French chalk. Pearl Powder is oxychloride of bismuth alone or mixed with French chalk, according to the price obtained.

132/15. *X. F. Z.*—Composition for Sticky Fly-papers.—Soft gum thus, 4 oz.; linseed oil, 1½ oz.; honey, 1 oz. M.s.a. If too hard add more oil.

117/37. *F. C.* (Aberdeen).—Isinglass is the best thing for the Removal of Tannin from Port Wine. Steep 20 grains of it in ½ oz. of water until it softens; then add to a bottle of wine and set aside for a few days, shaking occasionally. The gelatine of the isinglass combines with the tannin to form an insoluble tannate. Decant the clear wine from this.



122/8. *J. M.*—We have not examined the enamels in question, but presume that they are simply hard drying paints with a benzole basis.

123/31. *Ajax.*—See reply to *Scotia*, page 258.

122/51. *C. M. B.*—The Minor examination is generally held in Edinburgh in the third week of October, as the fourth week is a broken one for business, there being a "fast day" on the Thursday. The days are fixed according to the number of candidates to be examined, beginning, as a rule, on Tuesday.

122/42. *Juvenis.*—Compound tincture of camphor and tincture of nux vomica cannot be made without spirit, as aqueous preparations would not possess the medicinal properties of the drugs used.

60/119. *W. A. P.*—To seal over a Leclanché cell, fill the space between the inner cell and the outer vessel (when the former is in position in centre of latter) with fine sand to within one-sixteenth of an inch of the top. Then melt some pitch (made for this purpose, and obtainable at any electrician's) or similar substance, and spread evenly over the top of this sand, and also over the top of the inner cell, if it be not already sealed. Take care to first insert into the sand the end of a stick, which can be afterwards withdrawn, so as to leave a hole in the hardened pitch through which the sand can all be shaken out, the ammonia solution inserted, and finally the zinc electrode. When the battery is to be carried about, sealing is necessary to prevent spilling of liquid, and consequent capillary action, which would destroy connections. Otherwise it is not essential or necessary, as, owing to the freer access of air when *unsealed*, a Leclanché works a great deal better. To allow freer access of air make a small hole through the pitch into the inner cell also. This can be done with a small rod of hot iron. Soldering of wires is unnecessary, as a perfectly good connection can be formed between the cells by scraping the two ends to be joined in each case perfectly clean, twisting them together several times round each other, and insulating the joint in any convenient way.

125/49. *H. S. N.* (Aix-les-Bains).—(1) Tutty is an impure oxide of zinc, but the ordinary oxide is generally given for it, and it is used as a dusting powder. (2) *Fabiana Imbricata* is a Chilian plant, the flowering stem and leaves of which, under the name of Pichi, were introduced into Europe about three years ago as a remedy for stone in the bladder, liver affections, and the like.

125/24. *Pharmacien* (Paris).—The amended formula for Cod-liver Oil Emulsion given on page 302 of last week's issue affords as good an emulsion as can be desired. Some time ago (January 28, 1888, page 123) we examined a number of emulsions prepared by various methods, and showed that yolk of egg and tragacanth gave the best results. This the Unofficial Formulary Committee have also found to be the case.

126/30. *Pampas.*—(1) We do not have a working formula for liq. euonymin. et pepsin. co. (2) Chiropodists are persons who extract corns; this they do with a sharp knife, first wetting the corn with an alkaline solution. Their charge is about 2s. 6d. for each corn. (3) Diseases of the nose are generally treated in hospitals specially devoted to the throat, of which you will find a list in our last Diary, and the physicians of these hospitals are all specialists in the subject. (4) If the Red Nose is the result of dyspepsia, the plan is to remove the cause. Topical applications are of no value. We have examined some of the preparations of the maker named, and our opinion of them is that they are of very little value indeed. For example, a hair-curling fluid was found to be plain lime water.

123/62. *T. Tame.*—(1) We do not recollect the name of the maker of wheat-dressing which you refer to, but should think from its composition that it was the same as your No. 2—viz, sulphate of copper and carbolic acid (crude). Sulphate of copper is the basis of most of the popular dressings, the other ingredients being of little consequence, or simply added to disguise the true character of the dressing. (2) See page 636 (May 12) for a formula which affords an excellent ink similar to those which you name.

124/70. *C. & D.*—Claxton's Drops are made by an herbalist at Norwich, but how we cannot say.

127/14. *Cannon.*—The marking on syphons is done with the sandblast. We cannot recommend you to attempt the marking yourself either with the sandblast or hydrofluoric acid.

127/40. *Voght.*—See article by Mr. T. Maben, page 372 of last volume.

127/29. *Country Chemist.*—Aqua Limonis, Ph. E., was made by treating fresh lemon peel, 2 lbs., with water, q.s., and distilling 10 lbs. The addition of a little tr. limonis recent to the mixture would have given you all that you required.

127/16. *C. E. T.*—Calorific Fluid, used by dentists, varies in composition, but absolute ether and carbolic acid are the essential ingredients.

18/132. *A Welsh Assistant in England.*—We cannot spare more space than has already been given for the glorification of Welsh assistants.

Messrs. Grimbly & Kent, 15 High Street, Boston, ask for the favour of any chemist's experience as to the best stove for laboratory use—something with a drying closet and condenser.

122/67. *Paperine* sends us a sample of **Non-sizing Paper Varnish**. It is used principally for wall paper and fine inside decorative work; but on trying it we find that the varnish is excellent for labels, and has the great advantage of not requiring the paper surface to be sized before its application. On analysis we find that the varnish contains 55 per cent. of resinous matter, which was found to consist mainly of colophony, there being an indication of the presence of sandarac. The solvent is alcohol. On this basis we formulate the following recipe, but advise a little experiment until the proper consistency of varnish is obtained:—

Purified yellow resin in coarse powder	..	5 oz.
Sandarac in coarse powder	..	1 oz.
Methylated spirit	..	q.s.

Mix the resins with 8 oz. of the spirit and stir until dissolved, using a little heat to assist solution. Continue the heat until the varnish is perfectly clear, strain through a cloth, and, if the product weighs more than 10 oz., evaporate until it acquires that weight.

128/6. *Cologne* sends a sample of a "sure cure" for "husk" or "hoose" made by a Sussex farmer. The probable composition of a dose of this is represented by the following formula:—

Ferri peroxidii	..	3j.
Ol. picis rect.	..	3ij.
„ terebinth.	..	7ss.
„ lini ad	..	3ij.

Misce.

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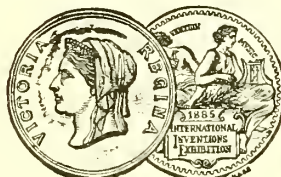
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ODOFORM, Absolut. ... ..	Crystals and powder of soft touch...	Purest; made by electrolysis.
PARALDEHYD ... ..	... ..	Absolutely purest.
POTASS. BROMIDE ... ..	Fine white dry regular crystals ...	Perfectly free from iodide, and the most free from chloride.
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**Spirit of Nitrous Ether.**

Guaranteed of Official Strength.

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Free from fishy odour. Unchanged at 32° F.

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From Unopened Flowers, free from added colouring matter.

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Soluble in cold water.

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Ground from Screened Seed.

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M.P. 149° F.

**Soluble Essences of Ginger, Lemon, &c.,**

For flavouring Aërated Waters.

**Emulsified Cod Liver Oil.**

With Hypophosphite of Lime.

**Minerolin (Mineroleum).**

A pure Hydro-Carbon Ointment Basis.

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ANSWERING ALL THE TESTS OF THE BRITISH PHARMACOPEIA.

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## COMPOUND SYRUP OF HYPOPHOSPHITES

*Contains the full amount of Hypophosphites, and is Neutral.*

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## MISTURA BISMUTHI AROMAT. CONC.

Dose—HALF DRACHM.—Equivalent to Liq. Bismuthi B.P., ʒj; Ether. Chlor., 15 m.; Tinct. Nucis. Vom., 8 m.; Morph. Mur., gr.  $\frac{1}{24}$ ; Acid. Hydrocyanic. Dil., 2 m. (Coloured as Tinc. Card. Co.)

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RAIMES, CLARK & CO.  
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ON APPLICATION.

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"Mr. Benger's admirable Preparations."—LANCET.

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For preparing peptonised or partially digested milk, soups, &c. Bottles, 1/6, 4/6, and 8/6, with full directions.

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Colourless, odourless, and soluble. One will peptonise a pint of milk, &c., in 10 to 15 minutes. Boxes of 12 powders, 2/6.

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An exceedingly active fluid pepsin. Dose, one to two teaspoonfuls with meals. Bottles, 3/ 5/6, and 10/6.

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A delicious quick restorative; will keep in any climate. Tins, 2/ each.

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A nutritive delicacy for Invalids. Tins, 2/ each.

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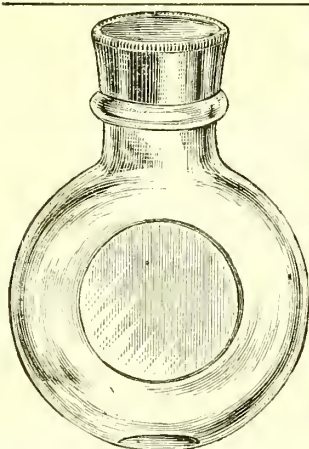
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For making pure whey, junkets, &c. Bottles, 1/ each.

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The Caps are all fitted with **INDESTRUCTIBLE WASHERS**, to resist the action of Ammonia and retain the strength of the Salts.

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## NORWEGIAN COD-LIVER OIL.

The Oil is supplied in 25-gallon tin-lined casks. Quantities for United States or the Colonies may be shipped direct from Norway if desired.

SAMPLES AND QUOTATIONS ON APPLICATION.

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MELTING POINT 125.5 C.

## THE NEW HYPNOTIC.

Manufacturer: J. D. RIEDEL, BERLIN.

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250 YEARS'

WORLD-WIDE

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# GOLDEN EYE

FOR ALL DISORDERS OF THE  
EYES AND EYELIDS.

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Recommended and frequently used by DR. WARE, DR. ALEXANDER, MR. CRITCHETT, and other Eminent Oculists

**CAUTION.**—None offered for Sale can be genuine unless the words **SINGLETON'S GOLDEN EYE OINTMENT** are engraved on the Government Stamp and round the Pot, and the Bill of Directions in which it is enclosed bears the name and address—

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# CARBON CONES & CASES

(PATENTED.)

For the Production of Vapours for Medicinal Matters and Chemico-Medicinal Products, for the purposes of Inhalation, for Disinfecting and Antiseptic Uses, &c.

By this method a prompt and ready means is available for obtaining vapours of an extremely attenuated character, of high diffusive powers and greatest activities, either in the dry state or accompanied with water vapour. The materials vaporised or indured gaseous are not decomposed in the process, but are constant in character, and their energies are wonderfully increased. They are, therefore, conspicuously adapted for loading given air spaces with medicinal matters, so that the patient may receive constant influences therefrom in the act of continuous breathing; or otherwise by direct inspiration by means of a simple arrangement as the volatilised principle issues from the Cone. **The Cones are always ready for use and require no auxiliary appliances whatever.** The Cones have been submitted to a large number of the leading Members of the Profession, Hospital Authorities, &c., and have received their unanimous approval.

**BRITISH MEDICAL JOURNAL:**—"The use of vapours for disinfection, deodorisation, and therapeutics has always presented some practical difficulties, and these difficulties have come in to reinforce certain theoretical objections which may be urged against methods of volatilisation hitherto employed. THESE CONES APPEAR TO US, AFTER CAREFUL TRIAL, entirely to do away with the PRACTICAL DIFFICULTIES, and to obviate some if not all, the THERAPEUTICAL OBJECTIONS. The construction of the cones is so excellent that the products of combustion can neither be seen nor smelt," &c.

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**PRACTITIONER:**—"This very ingenious invention is intended to utilise the principles involved in the production of vapours and gases for disinfecting and antiseptic purposes, and for the administration of therapeutic agents either as fumigations or inhalations, &c. . . . The new method has many advantages over the methods in use at present, such as sprays, hot plates, fuming papers, &c. Such contrivances are not

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**PROVINCIAL MEDICAL JOURNAL:**—"Their simplicity is evident—the medical profession will be only too glad to welcome the invention—which will shortly supersede the cumbersome machinery of the average description, &c. We can recommend our readers to write for specimens and particulars," &c., &c.

The following are among the many varieties produced at the service of the Profession.

*The Medical Cones are intended for the general distribution of medicated vapours in the apartments of the sick and invalid, or for direct inspiration whilst issuing from the Cone. The air space they will load is from 1,000 to 2,000 cubic feet, according to size of cone.*

FOR HOSPITALS, INFIRMARIES, &c., LARGER AIR SPACE CONES ARE SUPPLIED.

AMPHOR CARBOL  
TREBENE  
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THYMOL AND LAVENDER  
CARBOLIC AND LAVENDER  
HYDRARG. SUBCHLOR.  
OXYGEN GAS  
CARBOLIC ACID  
STRAMONIUM

CARBOLIC ET IODUM  
MENTHOL  
SULPHUROUS ACID  
CHLORINE  
BROMINE  
IODINE  
HYDRARG. SULPHURET  
MERCURIC CHLORIDE  
PERFUMES, etc., etc.

## VAPOR BROMO-EUCALYPTOL FOR PERTUSSIS



The Cones are ready for delivery to Medical Men, Wholesale Druggists and Chemists. To meet the expressed wish on the part of Members of the Profession, it has been decided to issue Cones and Flasks separately, so as to enable Practitioners to employ such remedies in specific cases as will meet their own views of treatment, &c., or the Company will undertake the filling of the Flasks.

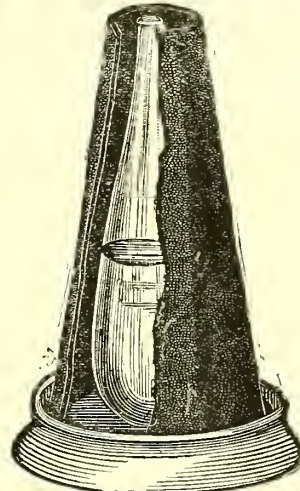
*Explanatory Pamphlets, Detailed Lists, &c., will be forwarded on application from the London Offices—*

62 HOLBORN VIADUCT, E.C.

CHEMICAL CARBON COMPANY

LIMITED, LONDON.

Works ... Basingstoke.



Showing the Cone burning.

Showing the interior of Cone.



# WYLEYS' GELATINE COATED OVAL PILLS.

The only Gelatine Coated Oval Pills of ENGLISH MANUFACTURE in the Market. Special List on application.

		Gross Botts			Gross Botts.			Gross Botts
Bismuth.	Pepsin.	Co.	Ferri Hypophosph.	Comp.		Hydrarg. et Arsenic.	Iodid.	
(Wyleys'), B.	Bismuth, Nit., 2		(Wyleys').	Each pill represents		(Wyleys').	Each pill equivalent to 5 minims of Donovan's	
gr.; Pepsin Porci, 1 gr.; Ferr.			1 fluid drachm of Syrup of the			Solution ...	...	1/8
Redact., 1 gr.; Strychnin, $\frac{1}{24}$ gr.	3/6		Hypophosphites...	...	2/6	Manganese Binoxid Pur., 1 gr.	2/6	
Calcil Sulphid. $\frac{1}{10}$ , $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , 1 gr.	1/8		Ferruginous (Bland's), 3 and			Phosphorus, $\frac{1}{80}$ Ext. Nuc.		
Cascara Sagrada (Ext.), 2 gr.	2/-		5 gr ...	...	1/8	Vom., $\frac{1}{4}$ gr. ...	...	2/-
Ergotin. Comp.			Ferri Quininæ et Strych-			Podophyllin Resin, $\frac{1}{8}$ gr.; Pil.		
Ergotin, 1 gr.; Ferri Sulph.			ninæ Phosph. (Wyleys'), re-			Rhei Co., 4 gr. ...	...	2/6
Exsic., 1 gr.; Ext. Hellebor.,			presenting Easton's Syrup	...	3/-	Potass. Permang., 1 gr., 2 gr.	2/-	
1 gr.; Ol. Sabinæ $\frac{1}{2}$ m.; Ext.								
Aloes Soc., 1 gr....	...	3/-						

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## IMPERIAL HAIR DYE.

(REGISTERED.)

ONE LIQUID. — Harmless, Perfect, Permanent, and free from Smell. Clear, and without Sediment.

Guaranteed to contain no lead, or any other noxious ingredient.

BLACK, BROWN, LIGHT BROWN, OR GOLDEN.

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No. 3.	3s. 6d.	" ..	24s. 6d. "
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No. 5.	10s. 6d.	" ..	78s. 6d. "

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## GOUT PILLS.

The Great Remedy for GOUT, RHEUMATISM, SCIATICA, LUMBAGO, and NEURALGIA.

The acute pain is quickly relieved and cured in a few days by this celebrated Medicine.

These Pills, which are perfectly harmless, require no confinement or restraint of diet during their use, and are certain to prevent the disease attacking any vital part. Sold by all Chemists at 1s. 1½d. and 2s. 9d. per box.

# WITHOUT A RIVAL!

From the time Medicine was first discovered by the Ancients down to the present none ever made such progress as

## BEECHAM'S PILLS.



They stand without a rival, and have by far the largest sale of any Patent Medicine in the World. This is a fact which every business man is bound to admit.

All Foreign Dealers will find BEECHAM'S PILLS the most Saleable Medicine in the Market.

The health-restoring and life-giving properties of these Pills are such as to increase their demand every year.

The words "BEECHAM'S PILLS, SAINT HELENS," are on the Government Stamp affixed to each box.

Prepared only and sold by the Proprietor, THOMAS BEECHAM, ST. HELENS, LANCASHIRE, ENGLAND, in boxes at 1s. 1½d. and 2s. 9d. each, with full instructions for use.

# Dr. J. COLLIS BROWNE'S CHLORODYNE.

THE ORIGINAL AND ONLY GENUINE.

## IMPORTANT CAUTIONS

From Lord Chancellor SELBORNE, Vice-Chancellor Sir W. PAGE WOOD,  
and the LORDS JUSTICES OF APPEAL.

VICE-CHANCELLOR SIR W. PAGE WOOD, by whom the suit in Chancery was first heard, stated in his judgment that 'Dr. J. Collis Browne was undoubtedly the Inventor of Chlorodyne, that the whole story of the Defendant Freeman was as deliberately untrue as the falsehood he had deposed to with reference to the use of his Chlorodyne in the Hospital.'

The VICE-CHANCELLOR also stated, 'that Chlorodyne was a fanciful name, and had application been made sooner, the Court would have given Dr. Browne protection.'

LORD CHANCELLOR SELBORNE coincided with the judgment of the Vice-Chancellor upon this point, and stated 'that his application been made at a proper time and place, the Court would have found means to restrain the Defendant from misrepresenting the decision of the Vice-Chancellor.'

LORD JUSTICE JAMES, on appeal, stated in his judgment, 'that the Defendant Freeman had made a deliberate misrepresentation of the decision of Vice-Chancellor Wood.'

It was proved in Court, on affidavit by Mrs. Forbes, of Paris, that the testimonial published in the *Times*, November 14th, 1865, speaking of the great efficacy of Chlorodyne in Cholera, referred to Dr. J. Collis Browne's Chlorodyne, and that she never used any other, that she had written to the Defendant Freeman to that effect; notwithstanding which notice the Defendant publishes the said testimonial as referring to his medicine.

The Editor of the *Medical Times*, in his report on Chlorodyne, January 13th, 1866, gives information that the Chlorodyne referred to was the medicine introduced by a retired Army Medical Officer, which was Dr. J. Collis Browne; still this is published by the Defendant as testimony to his medicine.

Numerous affidavits from eminent Physicians and others were produced in Court, stating that Dr. J. Collis Browne was the Inventor of Chlorodyne, and that when prescribing they mean no other.

The Defendant himself publishes that his compound is in effect and composition quite different to any other preparation; nevertheless he assumes the name, testimonials, &c., of Chlorodyne.

Technicalities in law prevent that protection which the public should justly have against such a course of conduct. It is now incumbent on all who purchase Chlorodyne to see that the name, 'Dr. J. Collis Browne's Chlorodyne,' is engraved on the Government Stamp, as it is not sold otherwise. All other compounds under the name of Chlorodyne are spurious. All attempts at analysis have failed; hence the statement that the constituents of Chlorodyne are known is a misrepresentation.

## FURTHER IMPORTANT NOTICE.

The subjoined list of eminent Firms concur with Vice-Chancellor Sir W. Page Wood's statement in Court, that Dr. Collis Browne was undoubtedly the Inventor of Chlorodyne; and that when Chlorodyne, or the Original Chlorodyne, is ordered, they invariably supply Dr. J. Collis Browne's:—

Apothecaries' Hall,	London	Frazer & Green,	Glasgow	Morson, T., & Son,	London
Allen, Hanbury & Co.,	"	Gale & Co.,	London	Newbery & Sons,	London
Baiss Brothers,	"	Giles & Son,	Clifton	Oldham, G., & Co.,	Dublin
Banks & Richards,	Birmingham	Goulding, Messrs.	Cork	Parsons & Richardson	Leicester
Barron, Harvey & Co.,	London	Gratton & Co.,	Belfast	Peake, Allen & Co.,	Dublin
Bell, John, & Co.,	"	Grimwade, Ridley,	London	Raimes & Co.,	York
Bourne & Taylor,	"	Grindley & Son,	Chester	Raimes & Co.,	Edinburgh
Corbyn & Co.,	"	Hearon, Squire & Francis,	London	Sang & Barker,	"
Cox & Gould,	"	Hodgkinson, Tonge & Stead,	"	Sanger, J., & Sons,	London
Curling & Co.,	"	Hopkins & Williams,	"	Sim, James & Co.,	Aberdeen
Curtis & Co.,	"	Hovenden, R., & Sons,	"	Smeeton, W.,	Leeds
Davy, M'Murdo & Co.,	"	Hunt & Co.,	Exeter	Southall & Co.,	Birmingham
Dobbin, W., & Co., Limited	Belfast	Hunt, A., & Co.,	"	Sutton, W., & Co.,	London
Drew, Barron & Co.,	London	Johnson, J. H. & S.,	Liverpool	Tomlinson, Hayward & Co.,	Lincoln
Drew, B., & Alexander,	"	Langton, W., & Co.,	London	Treacher, Hodgkinson & Co.,	London
Dunn & Company,	"	Lynch & Co.,	"	Westrup, J. B.,	Kensington
Edwards, W.,	"	Mander, Weaver,	Wolverhampton	Westwood & Hopkins,	London
Evans, Gadd & Co.,	Exeter	Marsden & Sons,	London	Woolley, James,	Manchester
Evans, Lescher & Webb,	London	Maw & Son,	"	Wyleys & Brown,	Coventry
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ONLY GENUINE.

After these public statements in a Court of Equity, and subsequent confirmation by the trade at large, no Chemist can conscientiously use or sell any other compound for Chlorodyne without committing a breach of faith, unjust to patient and physician. The value of the remedy alone creates the great demand.

Sold in Bottles—1s. 1d., 2s. 9d., 4s. 6d., and 11s. Usual Discount to the Profession.

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**SULPHATE OF QUININE**

(GOLD AND SILVER BRAND)

**QUININE FACTORY AUERBACH**

(DR. SEYFERTH).

*Certified by Professor Fresenius, of Wiesbaden, as  
equal to the best preparations of other marks.***DEUTSCHE GOLD AND SILBER  
SCHEIDE ANSTALT**

(VORMALS ROSSLER),

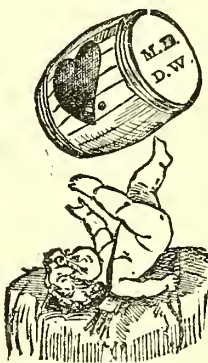
**FRANKFORT-ON-MAINE.**CYANIDE OF POTASSIUM,  
IODIDE OF POTASSIUM,  
BROMIDE OF POTASSIUM,  
NITRATE OF SILVER,  
CHLORIDE OF GOLD,  
SULPHOCYANIDE OF BARIUM,IRON Reduced by HYDROGEN,  
TARTARIC ACID,  
HYDROCHINON,  
STRONTIA,  
MAGNESIA, and ALL OTHER  
CHEMICALS forPHOTOGRAPHIC and PHARMACEUTICAL PURPOSES, of the  
Best Quality.**Sole Agents—OSCAR ANDREAE & CO.**

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**HOMŒOPATHIC MEDICINES**

REDUCED PRICES, SUBJECT TO CASH DISCOUNT.

	1s. SIZE.	6d. SIZE.
Pilules ... ..	5/-	3/- per dozen.
Tinctures ... ..	5/-	3/- "
Camphor Solution or Pilules ...	5/-	3/- "
Arnica External Tr. ... ..	7/-	4/- "
Tamus ... ..	6/-	4/- "
External Trs. (except above) ...	5/-	3/- "
Liniments ... ..	8/-	4/- "

SELECTIONS IN COUNTER SHOW CASES AT £2 12s., £3,  
£5 10s., £6 18s.**JAMES EPPS & CO.,**  
HOMŒOPATHIC CHEMISTS  
(FIRST ESTABLISHED),  
48, THREADNEEDLE ST., LONDON.**The Mormon Elder's****DAMIANA WAFERS**THE MOST POWERFUL  
**INVIGORANT**  
EVER PRODUCED.Permanently restores those weakened by early  
indiscretions, imparts youthful vigor, restores  
vitality, strengthens and invigorates the  
BRAIN AND NERVES. A positive cure for  
IMPOTENCY and Nervous Debility. *Prompt,  
Safe, and Sure.* 4/6 per box, 6 for 22/6. Usual  
discount to the Trade. Send for Circular.**F. B. CROUCH,**202 Grand Street, New York City;  
London Depot, 51 Strand, W.C.Hovenden & Son, Sanger & Son,  
Barclay & Sons, Edwards & Son, and  
all Wholesale Druggists.**PUMILINE.**THE ONLY PURE ESSENCE AND  
EXTRACT OF SNOW-GROWN  
PUMILIO PINES.

FOR GOUT, RHEUMATISM, SORE THROAT, CHEST AFFECTIONS.

SIR MORELL MACKENZIE wrote, December 9, 1887:—"I have much pleasure in stating that I have made  
use of Oleum Pumilionis during the last twenty-five years, that I consider it a most valuable preparation. It acts as  
an admirable tonic to the mucous membrane of the air passages in cases of chronic bronchitis and laryngeal catarrh.  
I am glad, therefore, to hear that the remedy is about to be used on a large scale, and I have no doubt the results  
will be highly satisfactory. (Signed) "MORELL MACKENZIE, M.D."

THE SNOW-GROWN PINUS PUMILIO.

PUMILINE ALONE, with the single exception of Pinol, possesses the physical and chemical properties which  
give it the faculty of being administered internally with **SAFETY**. It is, therefore, essential for Chemists to use  
Pumiline, as it is the only preparation obtained from snow-grown Pumilio Pines.

FOR TRADE PRICE LISTS, PAMPHLETS, ANALYTICAL REPORTS, &amp;c.—

**G. & G. STERN, 11 Billiter Square, LONDON. E.C.****VALUABLE & INTERESTING TO EVERYBODY.  
COMPRESSED HOPS.**Best Hops compressed into small parcels of one pound and half-pounds, and sent out in cases containing 30 lbs. each.  
These Hops are specially selected and compressed for keeping purposes, and will retain their aromatic strength for a con-  
siderable time.They are introduced to the Public to enable them to make their own BITTERS, YEAST, HOME BREWING  
and numerous other purposes. Full particulars given on each packet.*P.S.—Chemists will naturally see the great advantage in making their own Bitters from the Pure Hop itself.*Specially Packed by **A. WILKINSON & SONS, 27 Derby Lane, Old Swan, LIVERPOOL.**

SAMPLES AND QUOTATIONS ON APPLICATION.

Sole Agents for Chemists—**EVANS, SONS & CO., Liverpool; EVANS, LESCHER & WEBB,**  
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THE ORIGINAL AND ONLY TRUE

It is the Greatest Medical Discovery of the present Century, and is regarded as a boon to mankind.

It is the best known remedy for Coughs, Colds, Consumption, Whooping Cough, Bronchitis, and Asthma.

It effectually checks and arrests those too often fatal Diseases—Diphtheria, Diabetes, Fever, Croup, Ague, &c.

It acts like a charm in Diarrhoea, and is the only known Specific in Cholera and Dysentery.

It effectually cuts short all attacks of Epilepsy, Hysteria, Palpitation, Convulsions, and Spasms.

It is the only Palliative in Rheumatism, Gout, Cancer, Toothache, Neuralgia, Sciatica, Lumbago, &c.

It rapidly relieves pain from whatever cause, allays the irritation of Fever, soothes and strengthens the system under exhaustive diseases, restores the deranged functions, stimulates healthy action of the secretions of the body, gives quiet and refreshing sleep, and marvellously prolongs life. It may be taken by old and young at all hours and times, according to the Directions.

It is extensively used by Medical Men in their official and private practice, at home and abroad, who have given numerous written testimonials of its wonderful efficacy.

## SPECIMEN TESTIMONIALS.

From JOHN TANNER, M.D., L.R.C.P., M.R.C.S., L.S.A., L.M., Physician to the Farringdon Dispensary, London; Physician to the Rev. C. H. Spurgeon's Metropolitan College, &c.

102 HARLEY STREET, CAVENDISH SQUARE, W.

It gives me great pleasure to bear testimony in favour of FREEMAN'S Chlorodyne. I have prescribed it extensively, and in cases of Asthma, Chronic Bronchitis, the last stage of Phthisis, and the Winter Cough of the aged, I have never found any substitute or chemical combination its equal.

From J. DODD SWALLOW, M.D., M.R.C.S., Eng.; L.A.S.; Medical Officer to the London City Missions, &c., &c.

213 CLAPHAM ROAD, LONDON, S.W.

'I have great pleasure in stating that I am constantly prescribing FREEMAN'S Chlorodyne. In Consumption and Asthma, as a Sedative; in Cancer, and in cases of Diarrhoea and Dysentery, I am daily witnessing its striking effects, and believe that the thanks of the profession are due to Mr. FREEMAN for his efforts to bring prominently before the profession so valuable and reliable a remedy as the Chlorodyne which bears his name.'

264 PETIT SACONNEX, GENEVA, SWITZERLAND, January 6, 1886.

DEAR SIR,—I send by same post £1 16s., or 46 francs, for 8 bottles, value 4s. 6d. each. Your Chlorodyne has been used in a case of Cancer, notorious at Leonards-on-Sea, where Dr. Penhall and Dr. Harvey attended, and the case was given up as incurable, for the leg ought to have been cut off, and the patient was too weak to stand operation. Now, Dr. Metcalfe said the same thing, and your Chlorodyne cured the person, which, indeed, is my sentiment, after six years being still alive and perfectly well. I think it is due to you, as the Inventor of the remedy, to state the fact, that others in similar circumstances may never despair as long as life is in the body. I authorise you to use my letter as you may think best, and also my name, to prevent people being humbugged by other rubbish, &c.

To Mr. RICHARD FREEMAN.

Yours truly,

WALTER SAVAGE LANDOR.

Sold by Chemists and Patent Medicine Dealers all over the world, in bottles, 1s. 14d.; 2 oz., 2s. 9d.; 4 oz., 4s. 6d.; half-pint, 11s.; and pints, 20s. each; and by the Inventor, RICHARD FREEMAN, 70 Kennington Park Road, London, S.E.

Purchasers are cautioned not to have palmed upon them any substitute. See that the Trade Mark, "The Elephant," is on the wrapper, &c., and that the words Freeman's Original Chlorodyne are engraved on the Government Stamp, which is the only true Chlorodyne.

N.B.—Lord Chancellor Selborne, Lord Justice James, and Lord Justice Mellish decided in favour of Freeman's Original Chlorodyne, as against Brown and Davenport, compelling them to pay all costs in the suits. See Times of July 24, 1873.

London International and Universal Exhibition, 1884, Gold Medal Awarded for our Pharmaceutical Preparations.

Cuttia Exhibition, First-class Certificate and Two Prize Medals Awarded for our Pharmaceutical Preparations.

## HEWLETT'S

## MIST. PEPSINÆ CO. C. BISMUTHO.

Highly recommended in various forms of dyspepsia, having a direct action upon the mucous membrane of the stomach and intestines as a sedative. It can be administered with marked and almost instantaneous effect in the irritative form of dyspepsia, more especially when pyrosis is a conspicuous symptom, and pain occurs an hour or more after food. In simple neuralgic gastric pain following eating, occurring in feeble subjects, it is especially indicated, and even in carcinoma it has been used with great success in alleviating pain and vomiting.

In the dyspepsia of patients dependent upon some organic disease, and where there is a decided loss of nerve power, it is of singular service. Thus, for instance, a person after a meal complains of a peculiar gnawing and emptiness, with slight pain at the epigastrium, evident signs of general relaxation and loss of nerve power, clinical experience has shown that it is of great service as a tonic and stomachic. A portion of its value arises, it may be, from its action upon the spinal motor nerve centres. These things as they may, experience has abundantly demonstrated the value of the compound as a stomachic, anti-dyspeptic, and tonic, in general functional atony and relaxation, and in the various forms of dyspepsia, constipation, or diarrhoea, connected with atony of the visceral muscular coat, the Mist. Pepsinæ Co. c. Bismutho is a very valuable remedy. In the exhausting piping of Phthisis, accompanied with night sweats and restlessness, Dr. MATHEWS, of Nantwich, has used it with marked and appreciable effect.

Price (in England) 10s. 6d. per pound.

Physicians will oblige, when ordering Mist. Pepsinæ Co. c. Bismutho, by writing Mist. Pepsinæ Co. (Hewlett's).

Packed (for Dispensing only) in 10-oz., 22-oz., 40-oz., and 90-oz. Bottles.

## LONDON MEDICAL RECORD REPORT.

MISTURA PEPSINÆ COMPOSITA CUM BISMUTHO.

"This combination of Messrs. HEWLETT is one which has been extensively tested, and with good results. It is justly popular in the profession as a very valuable and effective combination. It serves not only to improve aepsia, but to lessen the gastric pain and to facilitate difficult and painful digestion, without setting up any evils of its own. It is a very good crutch for persons of weak stomach to lean on."—January 16th, 1881.

## C. J. HEWLETT & SON,

MANUFACTURING CHEMISTS,

40, 41 & 42 CHARLOTTE STREET, LONDON, E.C.

[Established 1832.]



# HOUDÉ'S PASTILS

## OF HYDROCHLORATE OF COCAINE.

Through the insensibility which they produce, *Houdé's Pastils of Chlorhydrate of Cocaine* procure the greatest relief and soothe the pain in Sickness of the Throat, in Hoarseness, Extinction of the Voice, Laryngitis, Inflammation of the Throat, and Asthmatic Complaints.

They help to remove the Pricking and Titillation of the throat, strengthen the vocal cords, and are very useful in diseases of the *Æsophagus* and the Stomach, Sea-sickness, Gastritis, Gastralgia, Vomiting, &c.

**DOSE.**—Take 6 to 8 pastils per diem, according to age, and at least one hour before meals.

Manufactured by **A. HOUDÉ**, 42 Rue du Faubourg St. Denis, PARIS.

**FRANCIS NEWBERY & SONS**, 1 King Edward Street, Newgate Street, London.

## B. HOOPER & CO., MANUFACTURING CHEMISTS,

SPECIAL MAKERS OF

Compressed Pellets.  
Permanent Hypodermic Injections.  
Fluid Extracts.  
Medicated Pessaries,  
Suppositories, and Bougies.  
Medicated Cigarettes.  
Composition Essence.

Capsules, Flexible and Hard.  
Nitrite of Amyl Perles.  
Pastilles, Medicated and Fumigating.  
Cachou Aromatisé.  
Coca Wine.  
Ergotin, "Hooper's."  
Liq. Copaibæ, &c., Soluble.

QUOTATIONS GIVEN FOR COMPRESSING OR CAPSULING SPECIAL PREPARATIONS

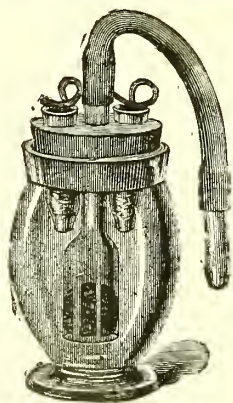
43 KING WILLIAM STREET, LONDON BRIDGE, E.C.

## GODFREY'S

NEW PATENT

## CHLORIDE OF AMMONIUM

CATARRHAL  
THROAT  
AND  
EAR  
AFFECTIONS.



LOSS of  
VOICE,  
BRONCHIAL  
ASTHMA  
AND  
HAY FEVER.

## INHALER

**Y**IELDS a plentiful cloud of Neutral Vapour with little effort on the part of the patient.

*Illustrated Prospectus*, with the "History of Chloride of Ammonium as a remedial agent," free by post.

Price 7/6 Retail.

SHIPPERS AND LARGE BUYERS SUPPLIED ON LIBERAL TERMS.

SOLE MAKERS—

**GODFREY & COOKE,**

30, CONDUIT STREET, BOND STREET, W.

52

## REPORT

ON

## COLEMAN'S LIEBIG'S EXTRACT

OF

## MEAT AND MALT WINE,

By **FRANCIS SUTTON, Esq., F.C.S.**,

Public Analyst for the County of Norfolk, &c.

**FRANCIS SUTTON, ESQ., F.C.S.**,

Analytical and Consulting Chemist,  
Author of *Handbook of Volumetric Analysis*,  
Chemist to the Norfolk Chamber of  
Agriculture,  
Gas Examiner for the City of Norwich.

**NORFOLK COUNTY ANALYSTS**

OFFICE,

LONDON STREET, NORWICH,

July 25th, 1888.

I hereby certify that I have made an exhaustive analysis of the Meat and Malt Wine prepared by Messrs. Coleman & Co., Limited, Norwich, with a view to determine chiefly whether it really contains an appreciable quantity of Meat Extract, and whether it is entitled to be classed as a suitable dietetic stimulant for invalids. The result of my analysis proves that it does contain a suitable proportion of all the most valuable principles contained in Liebig's Extract of Meat. It is well known to physiologists that this extract is not valued for the ordinary albumenoids (such as gelatine and albumen), which are, indeed, excluded to a large extent by the process of manufacture, but that its chief value, as shown by Baron Liebig himself, consists in its containing those essential principles peculiar to flesh, and which have a remarkable restorative power over the nervous system of invalids, thus rendering Liebig's Extract famous. In addition to these valuable substances the wine also contains a considerable quantity of Malt Extract, which is also well known and appreciated as an excellent restorative in cases of debility.

In addition to this the wine is of pure, natural quality, free from sophistication.

As witness my hand,

(Signed)

**FRANCIS SUTTON,**

Public Analyst for the County of Norfolk, &c.

TRADE PRICES ON APPLICATION TO

**COLEMAN & CO., LIM., NORWICH & LONDON.**

# COCA WINE

(ERYTHROXYLON COCA).

FOR FATIGUE (FMIND AND BODY.

A NEW RESTORATIVE TONIC OF VOCAL, MENTAL, AND PHYSICAL POWERS.

Particularly useful in Hot and Enervating Climates.

Trade Discount,  
25 per cent.

*June 28<sup>th</sup> 1887*  
*25 New Walk Terrace York*  
 Dear Sir I have been delighted with the  
 samples of Coca Wine which you have sent me  
 There is a minute animalcule which is destroyed by the  
 heat of summer, & which remains on the application of a  
 drop of water. Ambrecht's Coca Wine has a similar  
 effect in reviving & restoring the exhausted energies of  
 the human economy & its preserving & strengthening  
 powers are marvellous I am  
 Yours &c  
 J. Allen  
 Lecturer on Anatomy & Physiology  
 at the late York School of Medicine

Trade Discount,  
25 per cent.

THE RETAIL PRICE OF THIS WINE IS

6s. 6d. per Bottle, or 48s. per Dozen Box.

Coca Champagne Quarts - 56s. per doz.

Coca Champagne Pints - 33s. „

Labelled  
Vin  
mousseux  
de Coca  
très sec.

For sleeplessness this Wine is almost always successful, and superior to Opiates,  
 Chloral, and Bromides, &c., as it produces no reaction.

ARMBRECHT, NELSON & CO., 2 Duke Street, Grosvenor Square.



SEASON 1888-9.



# CHEST PROTECTORS.

IN SCARLET OR WHITE FELT,  
& IN CHAMOIS LEATHER AND FLANNEL.

WHOLESALE ONLY OF

## SOLPORT BROS.

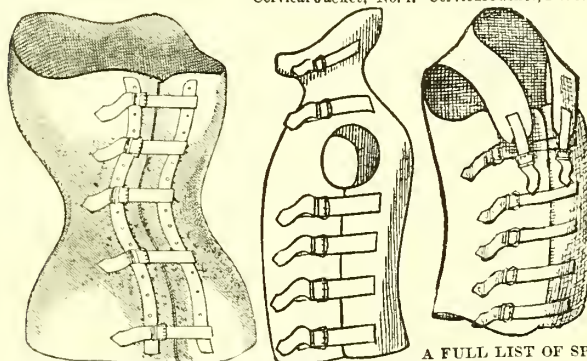
68 Shaftesbury Street,  
New North Road, LONDON, N.

QUOTATIONS  
GIVEN FOR  
ANY SIZE OR  
PATTERN.

COCKING'S ADAPTABLE PORO-PLASTIC JACKETS AND SPLINTS.

Patentee and Sole Manufacturer, J. T. COCKING, PLYMOUTH.

Cervical Jacket, No. 1. Cervical Jacket, No. 3.



INSTRUCTIONS  
FOR MEASUREMENT.

### JACKET

(in cases of slight deformity)

Circumference at axilla.

" " waist.

" " hips.

Length from axilla to great trochanter.

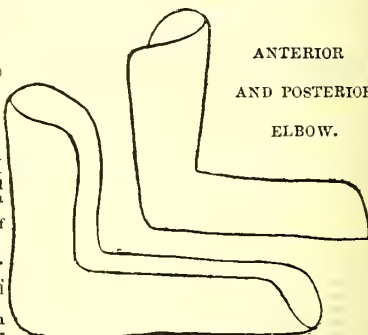
In severe angular cases circumference over apex of curve, position of ditto, and contour should be given; in lateral cases a description of the case.

In all cases it must be stated if for male or female.

### CERVICAL JACKETS.

Same measurements required, and circumference at neck, and length from neck to axilla.

Any part of the Jacket can in the process of manufacture be left soft.



A FULL LIST OF SPLINTS AND PORO-PLASTIC IN SHEETS MAY BE HAD ON APPLICATION

Telegrams—  
"LINT LIVERPOOL."

# LINT.

MANUFACTURERS OF

FLAX, & COTTON,

## LINTS,

ABSORBENT, AND CARDED

## COTTON WOOLS,

ABSORBENT, OPEN WHITE, and GREY

## BANDAGES,

SURGEON'S, AND CARBOLIZED

## TOW.

THE  
LIVERPOOL PATENT LINT CO.,  
MARK ST. MILLS,  
NETHERFIELD ROAD NORTH,  
LIVERPOOL.



DR. RENNER'S ESTABLISHMENT FOR  
VACCINATION WITH CALF LYMPH,

186 (late 228) Marylebone Road, London, N.W.

VACCINATION FROM THE CALF DAILY FROM 11 TO 12 O'CLOCK

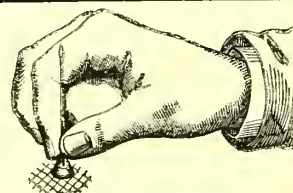
Reduced price of Calf Lymph (daily fresh).

Tubes	Large	...	...	2s. each, or 3 for	5s. 6d.
	Small	...	...	1s. " "	2s. 9d.
Points	Large	...	...	1s. " "	2s. 6d.
	Small	...	...	9d. " "	2s.
Squares	...	...	...	2s. 6d. each.	

Registered Telegraphic Address—"VACCINE LONDON."

Sent on receipt of remittance addressed to the Manager of the Establishment. Discount to the Trade.

Trade Mark.



Registered.

THE  
ASSOCIATION for the SUPPLY of PURE VACCINE LYMPH,  
12 PALE MALL EAST, LONDON, S.W.  
SOLE AGENTS FOR DR. WARLWORTH'S CALF VACCINE.

Tubes, 2s. each; Half Tubes, 1s. each. Pomade in vials, 5s.  
HUMAN VACCINE, from healthy children only, microscopically examined and source quoted. Tubes, two-thirds full, 1s. 6d. each; Tubes one-third full and Lancet-source quoted, 1s. each; Pin-points, 1s. 6d. each. Eighteen Charged Small Points, 5s. Tubes two-thirds full (same as those mentioned above, but without source), in quantities for export, £5 per 100 Tubes. Pin-points uncharged, 1s. per dozen. Vaccinations daily, between the hours of 12 and 2, by the Consulting Physician, at the uniform fee of a guinea. F.O.O.'s (including postage, and crossed London and Westminster Bank), with orders, payable to

EDWARD DARKE, Secretary.

Office hours, 10 to 4; Saturdays, 10 to 2.

# **IMPORTANT.**

## **ROYAL BALSAMIC PLAISTERS**

*PREPARED BY W. MATHER.*

## **CAUTION TO THE TRADE.**

The Commissioners of Inland Revenue having instituted Proceedings against several Chemists owing to certain Handbills accompanying the sale of Royal Balsamic Plaisters, such Handbills being regarded as asserting a Proprietary Right contrary to Act of Parliament, retailers are respectfully solicited to examine all packages of Plaisters they may have in stock, and

Destroy all Handbills Issued Prior to this Notice

that have reference to Royal Balsamic Plaisters. As all future Handbills will bear the date of issue at the bottom, it will be understood that all Handbills as have no date thereon must not be used. It is hoped that retailers will render assistance to prevent further proceedings by their compliance with the terms of this notice. It may be observed that the Stamp on the back of the Plaisters is in accordance with the Provisions of the Act of Parliament.

**W. MATHER,**  
**DYER STREET, HULME, MANCHESTER, ENGLAND.**

PRICE LISTS SENT ON APPLICATION.

London Wholesale and Export Agents: Messrs. MACE & HALDANE, 77 Milton Street, London, E.C.



# POROUS PLASTERS

(STRENGTHENING, BELLADONNA,  
AND ALL KINDS.)

ADHESIVE, BELLADONNA, MUSTARD, CORN, AND ALL OTHER PLASTERS.

Prepared for all Climates by **A. DE ST. DALMAS, LEICESTER,** Maker to the British Government and the Hospitals

## THE SURGEONS' LINT,

V.B. QUALITY.

The superior quality of Newsome's Absorbent Surgeons' Lint is universally admitted. The V.B. quality is quite pure and of great superficial area and exquisite softness. The C., D., E., and F. qualities are equally pure and absorbent; E. is stronger in fabric.

**NEWSOME'S BLEACHED ROLLED BANDAGES, 3 in., 2½ in., 2 in.** Also **SURGICAL ABSORBENT OPEN BANDAGES**  
Specially Bleached & Grey Carded Cotton Wools, Absorbent & Bleached & Grey Waddings; also Sheet Waddings, Tow, &c.

THE TRADE SUPPLIED THROUGH THE LONDON AND PROVINCIAL WHOLESALE HOUSES, OR FROM

**C. NEWSOME,** Spinner and Manufacturer, **MANCHESTER.**  
JERSEY ST. MILLS, ANCOATS.

London Agents—B. PRATT & CO., 1 Wood Street, E.C.

Telegraphic Address—"Newsome, Ancoats," Manchester.

**LINT.**  
**GAMGEE TISSUE.**  
(PATENT ABSORBENT GAUZE AND  
COTTON WOOL.)

**ABSORBENT  
COTTON WOOL.**

**ROLL BANDAGES.**

**ROBINSON & SONS,**

COTTON SPINNERS AND MANUFACTURERS OF

**SURGONS' LINTS, COTTON WOOLS,  
AND BANDAGES,**

**WHEAT BRIDGE MILLS,  
NEAR CHESTERFIELD.**

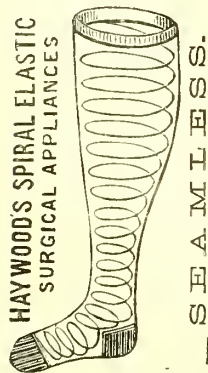
**Depot—55 Fann Street, Aldersgate Street, London.**



**TRADE MARK.**

## HAYWOOD'S PATENT SURGICAL APPLIANCES.

**STOCKINGS, SOCKS, LEGGINGS, &c.,**  
MADE ON ENTIRELY NEW PRINCIPLES.



**SUMMER REQUISITES.**—Seamless Elastic Stockings, &c., no seams to irritate the Heels and Feet. Ladies' and Gents' Belts, Light Texture. Trusses and Belts for Bathing, Bathing Caps, Sponge Bags. Lawn Tennis and Athletic Supports for Wrists, Elbows, Knees, and Ankles. Magnetic Appliances, Chest-Expanding Braces, Bathing Gloves, Hay Fever Handkerchiefs, Stocking Suspenders, Perfume Diffusers, Seltzogenes, Druggists' Sundries. Lists on application.

**J. H. HAYWOOD, CASTLE GATE, NOTTINGHAM.**

See **INDEX TO ADVERTISEMENTS**, pp. 31-33.

# AYRTON & SAUNDERS,

Designers and Manufacturers

OF

## High-Class Artistic Specialities

FOR CHEMISTS AND DRUGGISTS;

WHOLESALE AND EXPORT DEALERS IN

PATENT LINT, PLAISTERS, AND COTTON WOOL,

MEDICAL GLASS BOTTLES,

SURGICAL INSTRUMENTS, TRUSSES, &c.

HARD AND SOFT WOOD TURNERS;

MANUFACTURERS OF ROUND, SQUARE, AND OVAL BOXES,

IN PAPER, WILLOW, AND CHIP;

IMPORTERS OF

AMERICAN, GERMAN, & FRENCH BOXES;

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DRUGGISTS' SUNDRIES of every description.

SPECIAL QUOTATIONS TO LARGE BUYERS FOR CASH.

WAREHOUSES—

149 & 153 DUKE ST.




FACTORY—

62 PARR STREET,

## LIVERPOOL.

All Letters, Orders, &c., to be addressed to the Firm, 149 DUKE STREET.

 AYRTON & SAUNDERS will be glad to undertake Foreign Agencies and Commissions, and to buy and ship for Firms who have no representatives in England, and as they keep themselves thoroughly abreast of the times their friends can rely upon being well posted up in all the Novelties and Specialities that are being constantly introduced.

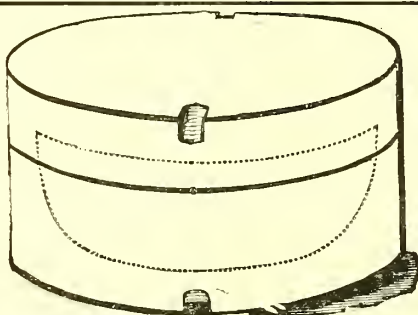


# WILLIAM TOOGOOD'S SPECIALITIES.

WAREHOUSE AND SHOW ROOM,  
BURLINGTON BUILDINGS,  
BEDDON STREET, REGENT STREET, LONDON, W.

## TOOGOOD'S IMPROVED PATENT EARTHENWARE COVERED POTS

*Are claimed to be the most perfect  
and convenient yet offered to the Trade.*



Owing to the increasing demand for our Patent Pots, we have introduced a Special THIN Series for Dispensing.

These Pots are beautifully glazed and finished, and, being very light, are specially adapted for sending by post.

### ORDINARY THICKNESS—

1 dr.	2 dr.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	3	4	6	8 ounces,
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{2}{2}$	$\frac{2}{10}$	$\frac{3}{4}$	$\frac{4}{6}$	$\frac{5}{6}$ per doz.

### THIN for DISPENSING—

$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	3	4	6	8 ounces.
$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{2}{-}$	$\frac{2}{4}$	$\frac{3}{-}$	$\frac{3}{8}$	$\frac{5}{-}$	$\frac{6}{-}$ per doz.

## TOOGOOD'S BURNT-IN POTS, FOR COLD CREAM, TOOTH PASTE, &c.

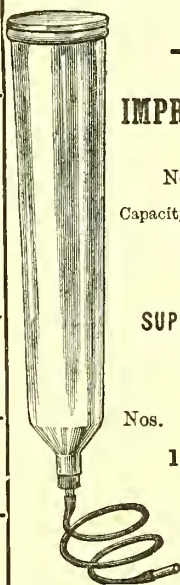
## TOOGOOD'S GRADUATED MEASURES.

## TOOGOOD'S BOXWOOD-TOP CORK BOTTLES

## TOOGOOD'S MEXICAN SQUARES.

## TOOGOOD'S CORN-SOLVENT BOTTLE.

## TOOGOOD'S POISON BOTTLES.



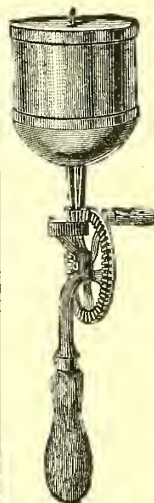
## TOOGOOD'S IMPROVED PERCOLATORS.

Nos.	1	2	3	4	5
Capacity	12	25	66	100	160 ozs.
	2/	3/	4/6	6/	7/ each

### SUPPORTS FOR ABOVE IN STAINED WOOD.

Nos.	1	2	3	4	5
	$\frac{1}{9}$	$\frac{2}{-}$	$\frac{3}{-}$	$\frac{3}{-}$	$\frac{3}{6}$ each.

## NORMAN'S PATENT PILL COATER



The cheapest and most efficient machine yet introduced, combining simplicity with portability, and enabling small quantities of pills to be coated with the same facility as large.

*It speedily saves its own cost.*

Price 3/6 each.

AUSTRALIAN AGENCY AND SAMPLE ROOM:

Mr. A. I. JOSEPH, 250 Pitt Street, Sydney.

Telegraphic Address: "TOOGOOD LONDON."

Telephone No. 3834.

*William Toogood's Price Current of Glass Bottles, Measures, Earthenware, Druggists' Sundries, &c., will be forwarded post free upon application.*

**SPECIAL ATTENTION GIVEN TO SHIPPING ORDERS.**



**KILNER'S PATENT GLASS BOTTLES**

Address, BOTTLES LONDON.  
Telegraphic Address, BOTTLES LONDON.

Having all the Latest Improvements for the Production of Bottles, Cases, &c., can offer all Kinds, Shapes, Sizes, and Prices to

**FOREIGN & COLONIAL BUYERS.**

Catalogues and Price Lists sent free on application.

**MINERAL WATER, WINE, SPIRIT, BEER, CONFECTIONERY BOTTLES.**

**DISPENSING, FEEDING, PICKLE, DRUG, OIL, SAUCE, VINEGAR BOTTLES.**

**BOTTLING AND CORKING MACHINES. FEEDING BOTTLES.**

**SYPHONS.**  
In Azure Blue, Green, or Amber Glass,  
In White or Blue Glass.

**SYPHONS.**  
Round or Oval, Long or Short Levers,  
Bright Metal or Silver-plated Tops.

That our BOTTLES are the BEST VALUE is SELF-EVIDENT from the FACT that they are

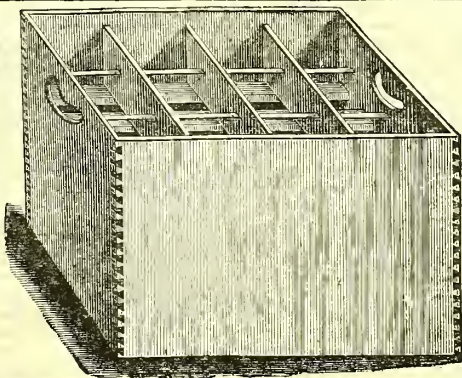
MOST FAVOURABLY KNOWN IN ALL THE PRINCIPAL MARKETS OF the WORLD.

Correspondence cordially invited. Quotations & Samples sent by return.



**CORKS & STOPPERS**  
IN  
**ENDLESS VARIETY.**

**OUR LEDGE MOUTH BOTTLES ARE THE BEST.**

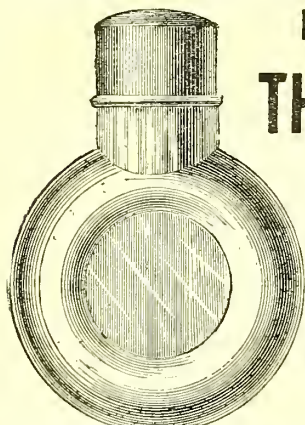


**VAN BOX CASES, TRAYS, ETC.**

**OUR CODD'S BOTTLES ARE THE BEST.**

**No. 3<sup>A</sup> GREAT NORTHERN GOODS STATION, KING'S CROSS, LONDON.**





## EXTRAORDINARY CHEAP LINE!!! THE WATCH SMELLING-SALT BOTTLE

PLAIN OR FLUTED.

These Bottles are fitted with BEST SCREW NICKEL CAPS, lined with Washers, and are the most wonderful value ever offered. A trial order will prove this fact.

**PRICE,** IN BEST WHITE FLINT OR ASSORTED COLOURS, **12/-** PER GROSS, in not less than 1 gr. lots.  
SPECIAL QUOTATIONS for Orders of FIVE GROSS and upwards.

**E. A. HEARN & CO.,** Manufacturers of Glass Bottles of every description,

381-3 KINGSLAND ROAD, LONDON, E.

The annexed Illustration shows exact size of above-mentioned Bottle.

## DISPENSING BOTTLES & PHIALS

The following are our greatly Reduced Prices:—

**CLEAR BLUE TINTED.**

3 and 4 oz. ....	8/6 per gross.	12 oz. ....	11/6 per gross
6 and 8 oz. ....	7/6 "	16 oz. ....	15/6 "

**WHITE MOULDED PHIALS.**

LONG OR SQUAT SERIES.

3/4 oz. ....	3/0 per gross.	1 1/2 oz. ....	4/3 per gross
1 oz. ....	3/6 "	2 oz. ....	4/6 "

Prompt attention to country orders. Packages 1/ each, allowed for if returned. Sample bottle sent free on application.

**I. ISAACS & CO.**

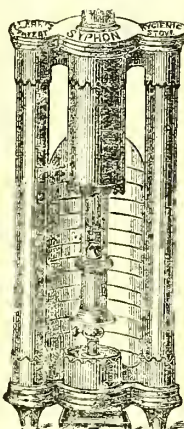
GLASS BOTTLE MANUFACTURERS,

25 Francis St., Tottenham Court Road, London, W.C.

Established upwards of 70 years.

Bankers, London and Westminster

40 inches high, 18 inches wide.



THE  
**"SYPHON"**

(REGISTERED TITLE)

(CLARK'S PATENT)

**GAS HEATING STOVES.**

NO FLUE REQUIRED.

No smoke. No smell. No dirt or trouble. No danger. All sulphurous vapours are condensed inside the Stoves, and passed off as a liquid into tray beneath. The ONLY SAFE ones for use in Hospitals, Sick Chambers, Greenhouses, Bedrooms, Halls, Shops, Offices, Churches, Schools, &c. **BEWARE OF IMITATIONS.**

Price Lists and Terms on application to

**S. CLARK & CO.,** Patentee

"Syphon" Works, Park St.,

ISLINGTON, LONDON, N.

## PINE'S DEVONSHIRE OILS

PRICE

1 dozen,	13/6	Per doz. net in
3 "	12/6	Wine Bottles.
6 "	11/6	CARRIAGE PAID.
12 "	10/6	Single Sample
		Bottle, 1/9.

**FOR HORSES, COWS, SHEEP, AND LAMBS.**

THESE CATTLE OILS are prepared from the Original and Valuable Recipe of WILLIAM YOUATT PINE, and are unsurpassed, their great sale being a sufficient guarantee of their EXCELLENCE.

PREPARED AND SOLD WHOLESALE BY

**WALTER GREGORY, 31 Fore Street, WELLINGTON, SOMERSET.**

AN OLD SAW WITH NEW TEETH.

**SELL FLY CATCHERS WHILE THE FLIES ARE OUT!**

If you would like a bit of roaring trade, tackle

**WILSON'S STICKY FLY PAPERS,**

As advertised in this journal. Their sale just now is fast and furious! Drop a card and you shall be fixed up sharp, and we can square up at the end of the harvest. You pay only for what you sell.

**THESE FLY PAPERS WILL FETCH 'EM! CATCH 'EM!! AND KEEP 'EM!!**

SILVER MEDAL  
I.H.E. 1884.



THE ONLY  
MEDAL AWARDED  
FOR THIS  
SPECIALITY

**CHLORIDE OF LIME!**

IN AIRTIGHT WATERPROOF & ODOURLESS PACKAGES  
INVENTORS AND MANUFACTURERS **NATIONAL CHEMICAL CO., LONDON**

THE N. C. COS. PACKAGES HAVE STOOD THE TEST FOR MANY YEARS, AND CAN ALWAYS BE RELIED UPON TO GIVE SATISFACTION.

KEPT IN STOCK BY ALL WHOLESALE DRUGGISTS &c.  
SEE THEIR PRICE LISTS.

SILVER MEDAL  
I.H.E. 1884.



BEWARE  
OF OTHER 'SD'  
CALLED AIRTIGHT  
PACKAGES.

## ROBINSON'S ORANGE WINE.

Specially prepared for Quinine Wine, does not deposit, will keep good in any climate, and well adapted for Export Trade. Supplied in Cask containing 9, 18, 30, 60, or 120 Gallons. Terms on application.

## PHARMACEUTICAL SHERRY WINE.

This Wine is well adapted for Pharmaceutical Preparations, and is the strength ordered by the B.P. Price, in 6-Gallon Casks, 5/6 per gallon; in 2-Gallon Jars, 6/- per gallon, carriage paid. Casks charged 7/6, Jars 2/6, and allowed if returned. Cash or satisfactory reference to accompany order.

**B. ROBINSON, Distiller and Brewer of British Wines, Church St., Pendleton, Manchester.**



# EAU LODOIS

THE ONLY TRUE HAIR PROMOTER.

PERFECTLY HARMLESS.

As recommended by the Medical Profession, and testified to by numerous Genuine Testimonials.

## POMADE TRICHOPHILE

For Dandruff and General Scalp Diseases.

FOR TRADE TERMS APPLY TO

THE FRENCH HYGIENIC SOCIETY, 6 CONDUIT ST., REGENT ST., LONDON.

### NOTICE OF REMOVAL.

Please note Change of Address, which is now

5 CONDUIT STREET, REGENT STREET, LONDON.

## COCA TOBACCO AND CIGARETTES.

SUPREMELY DELICIOUS! MOST EXQUISITE AROMA!

ABSOLUTELY FREE FROM NICOTINE.

Licensed by Her Majesty's Government.



THE above preparation of Dr. NACHTIGAL, M.D., is pronounced by the members of the Medical Profession to be a stimulant, tonic, and restorative to the system. In the shape of Tobacco and Cigarettes the smoke difficulty is overcome—all may enjoy their smoke with benefit to health. Any amount of muscular labour and mental exertion may be undertaken without the usual fatigue by those who smoke the above. It is much used by Bicyclists and Athletes generally, and all speak most favourably of it. From the Report of the Bavarian Army Corps, the officers and men of which used it during their severe labours in the heat of June and July, it is spoken of in the most flattering terms of satisfaction and commendation in every way, and as highly beneficial to the men who used it when on night service.

Inventor—Dr. NACHTIGAL, M.D. (late Staff-Surgeon German Army).

Sole Licensed Manufacturer—Mr. OSCAR FRIEHELM.

SOLE CONSIGNEES FOR THE BRITISH EMPIRE:

THE FRENCH HYGIENIC SOCIETY, 6 CONDUIT ST., REGENT ST., LONDON.

### PRICES REDUCED.

CIGARETTES, Sanitary, fully charged with Coca .....	2/	per packet of 20.
" " " " .....	8/	100.
" No. 1, moderately charged with Coca.....	£3 6/8	per 1,000.
" " " " .....	2/	per packet of 20; 8/ per 100.
" No. 2, mildly " charged with " Coca .....	£3 6/8	per 1,000.
" " " " .....	1/6	per packet of 20; 6/ per 100.
No. 1.—Mild " Smoking Mixture, 12/ per lb.	£2 12/8	per 1,000.
No. 2.—Medium Smoking Mixture, 12/ per lb.		
No. 3.—Strong Smoking Mixture, 12/ per lb.		

FRENCH HYGIENIC SOCIETY, 6 CONDUIT STREET, REGENT STREET, LONDON,

UPON RECEIPT OF A FULL REMITTANCE.

But the above can be obtained through Messrs. Kemp & Co. (Lim.), Bombay, or direct from the Consignees, the French Hygienic Society, 6 Conduit Street, Regent Street, London, upon receipt of a full remittance.



# GLASS WOOL

For Filtering Acids, Alkalies and other Corrosive Liquids, in large or small quantities.

**ASK FOR PRICES.**

**MAWSON, SWAN & WEDDELL,**  
NEWCASTLE-ON-TYNE.

# MAWSON'S FILTERS

(IMPROVED PATENT).

All Filtering Medium now manufactured and tested on our premises.

*THE MOST SIMPLE AND EFFICIENT FILTER KNOWN.*

**MAWSON, SWAN & WEDDELL,**  
NEWCASTLE-ON-TYNE. 2

## REVOLUTION IN THE FLY PAPER TRADE.

It must have been observed that for some time the public have become disgusted with the old poisonous fly paper, and have taken somewhat readily to a sticky sort of substitute.

The advertiser has perfected and patented a Fly Paper of this nature, which will certainly be the leading thing in this way in the future. It is a well got-up and effective paper, and is as cleanly to handle as a sheet of note-paper.

In the advertiser's own retail establishment last season the sale of this was simply enormous, as they were freely used by tradespeople (butchers, bakers, grocers, and confectioners), who would not dare to risk the danger from dead poisoned flies about their stock. Owners of horses and cowkeepers were delighted with them, as they spared the animals the torture from this source.

From the nature of the article it cannot very well be stocked by Wholesale Houses for distribution to the Retail Trade, but the Parcel Post will carry them direct from the maker, and Postal Orders will facilitate remittance.

The price is 4/6 per gross (carriage free), but where a large trade is developed more liberal terms will be given.

Send sample order for small lot, and while the season is on you are bound to do a big thing.

ADDRESS—

**S. WILSON, CHEMIST, ST. HELENS, LANCs.**

## GENUINE INSECT POWDER

Dalmatian, from Closed Flowers.

1s. 8d. per lb., 160s. per cwt.

**G. VOGT,**

WHOLESALE AND EXPORT DRUGGIST,

12 Laurence Pountney Lane, Cannon St., London, E.C.

TELEGRAMS: "ALSACE LONDON."

PRIZE MEDAL,  
International  
Health Exhibition,  
1884.

THE NEW PERMANENT

## ENGRAVED WINDOW TABLETS

AWARD OF MERIT,  
International  
Sanitary Exhibition,  
1881.

**IN RUBY, BLUE, AMBER, AND OPAL GLASS.**

Send particulars of size, subject matter, and colour, when price for one Tablet and upwards will be sent.

For Proprietary Articles, 100 8x6 Ruby Tablets, £3 15s. 0d.

**J. R. CORSAN, THE LONDON SAND-BLAST WORKS, 80 GRAY'S INN ROAD, W.C.**  
**TO PREVENT FRAUD, DEMAND BUSINESS CARD FROM TRAVELLERS.**

## AN ESTABLISHED NEW YORK COMMISSION AGENCY,

Representing well-known English Manufacturing Chemists, and now doing an extensive business with the Wholesale Drug Trade of America, can introduce Specialities to advantage. Correspondence solicited.

Address—**FRANCIS J. MACNAUGHTAN, 20 Cedar Street, New York City, U.S.A.**

REFERENCES—**T. & H. SMITH & Co., 12 Worship Street, London;**  
**MAY & BAKER, Battersea, London** **ROBERT GRAESSER, Ruabon, Wales.**

## FERRUM REDACTUM BY HYDROGEN

IN EVERY PERCENTAGE.

Manufactured by the 'Chemische Fabrik,'

**DR. PAUL LOHMANN,**

**HAMELN, HANNOVER, GERMANY.**



# JEWSBURY & BROWN'S

(MANCHESTER)

## SPARKLING TABLE WATERS,

UNRIVALLED FOR PURITY AND QUALITY.

SODA WATER.

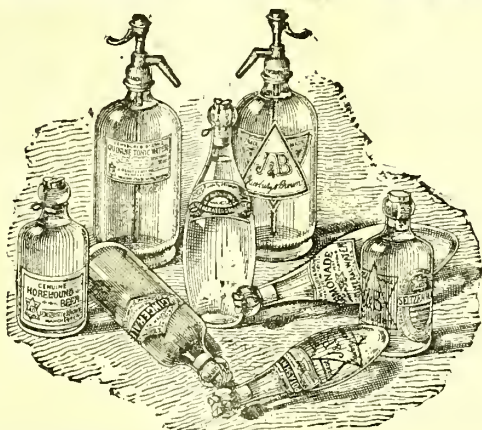
SELTZER WATER.

POTASH WATER.

LITHIA WATER.

SIMPLE

AERATED WATER.



LEMONADE.

GINGER ALE.

QUININE TONIC.

GINGER BEER.

HOREHOUND BEER.

### EXTRACTS FROM ANALYTICAL REPORTS.

"The examination of the Waters which I have made has satisfied me that they have been prepared with the greatest care, and are of excellent quality."  
FRANCIS JONES, F.R.S.E., F.C.S.

"The Lemonade is, for flavour and general excellence, superior to any similar compound which I have examined, and contains no acid but Citric Acid."  
"I took a sample of the water used in your manufactory, in the preparation of the Aerated Waters, and found it, as was the case with the completed compounds, entirely free from lead, copper, or any injurious matter whatever."  
C. ESTCOURT, F.C.S., F.C.I.

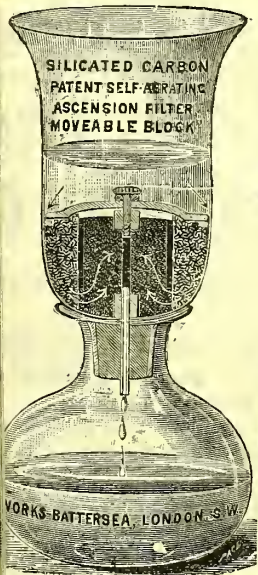
J. B.'s Syphons are mounted with PURE BLOCK TIN, thus ensuring absolute immunity from dangerous metallic contamination

13 MARKET STREET, and 44 DOWNING STREET, MANCHESTER.

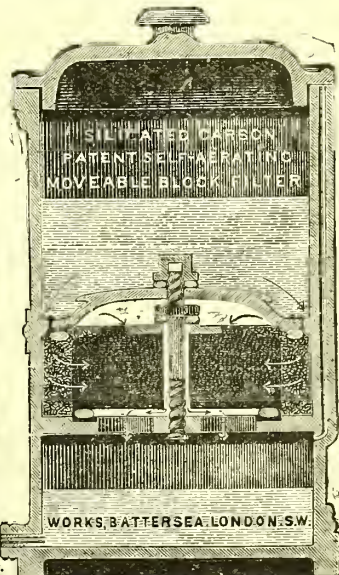
## FLATNESS OF TASTE

IS COMMON IN FILTERED WATER,

## OBVIATED BY USING SILICATED CARBON FILTERS AERATED



Glass Table Filters.



Domestic Filters.

By means of which the water is Aerated and Filtered simultaneously, rendering it, even after boiling, Pure, Bright, and Palatable.

The Silicated Carbon Block can be Instantly Removed, leaving the whole of the Filter Open for Inspection and Cleansing.



FOR PRICES AND FULL PARTICULARS, WRITE TO THE  
SILICATED CARBON FILTER CO., BATTERSEA, LONDON, S.W.



Gold Medal, Hygienic Exhibition, Ostend, 1888.

A lovely BATH and  
Toilet Water  
will be  
obtained by  
using



This entirely new and excellent health-giving preparation *SOFTENS* the WATER, and gives it a most **DELICIOUS ODOUR.**

**PASTA MACK**  
**BEAUTIFIES THE COMPLEXION**

In a most extraordinary way.

Should be in every Bathroom and Bedroom.  
To be had of all respectable Chemists and Perfumers  
throughout the world.

**BEWARE OF WORTHLESS IMITATIONS.**

Sole Manufacturer and Inventor, **H. MACK**, Ulm a/D.

Wholesale Agents for Great Britain—

**OSBORNE, GARRETT & CO., LONDON, W.**

**FREE SAMPLES GIVEN AWAY WITH EVERY TRIAL ORDER.**

# BARNETT'S

(HERBERT H. BARNETT, late of New Zealand)

## PERFUMES.

THE GENUINE

# 'OPOPONAX'

FRANGIPANNI  
WHITE ROSE  
JOCKEY CLUB

STEPHANOTIS  
WOOD VIOLET  
RONDELETIA

And many others, in  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and 1 lb. Bottles.

Considering Quality and Strength, these are the Cheapest and most saleable  
in the Market.

### SWEET SCENTED SACHETS.

HAIR & TOILET PREPARATIONS of every description.

Samples 8/6 per gross. Samples & Price Lists Post Free

## BARNETT & CO.

Laboratory of Flowers, 31 BROAD STREET,

Warehouse and Manufactory, 285 BROAD STREET,

### BIRMINGHAM.

London Offices—129 Aldersgate Street and 1 Carthusian St

# THE NEW REGISTERED PERFUME.

*This most exquisite, original, and permanent Perfume has been pronounced by Connoisseurs to be the finest ever produced. It is distilled with the greatest care, and will not discolour the most delicate fabric. The fashionable world has pronounced it unique.*

**2/6, 4/6, 7/6,  
& 10/6  
per Bottle.**

*Goldweiss*

## THE ROYAL PERFUMERY CO.

OFFICE AND SAMPLE ROOMS—

185 QUEEN VICTORIA STREET

WAREHOUSE AND MANUFACTORY—

2 & 4 Brickhill Lane, Upper Thames St., London, E.C.

Wholesale and Export Perfumers and  
Soap Manufacturers,

Hold the Sole Right of its Manufacture, and have Registered it  
under "The Trade Marks Act," No. 28,217, May 1st, 1882.

## THE ROYAL PERFUMERY CO.

ALSO MAKE

**MATHIOLA**, a Perfume of exquisite fragrance.

**GLYCERINE AND HONEY BALM**, a superior Cosmetic for the Skin. In jars at 1/6.

**THE "SERVICE" POMADE** will positively restore Grey or Faded Hair to its original colour. In jars, 3/6 and 6/ each.

Obtainable of all Chemists and Perfumers in any part of the World.



# ORIENTAL AROMATIC SALTS,

FOR BATH AND TOILET PURPOSES.



The **ORIENTAL AROMATIC SALTS**, when dissolved, render the water very soft, and impart a most agreeable and refreshing perfume that can be diffused with advantage in a room where the air is close and depressing.

The **ORIENTAL AROMATIC SALTS** strengthen the tissues, perfume and invigorate the body, preserving it from contagious diseases, and cleanse the pores, thus facilitating the cutaneous transpiration so necessary to life.

The **ORIENTAL AROMATIC SALTS** are unrivalled for beautifying and preserving the Skin, rendering it soft and velvet-like; and for keeping the complexion perfectly bright and clear.

They are indispensable in the Bath as well as in the Bedroom, and should be used by everybody.

*Sold in Bottles at 1/6. Wholesale of the Patentees and Manufacturers—*

**S. TRAVADO & CO., 27 Jewry St., E.C., LONDON.**

To be had also of Messrs. BREIDENBACH & CO., Perfumers to the Queen,  
157b NEW BOND STREET, W.

## GREENSILL'S THE ORIGINAL

When ordering from **MONA** AND ONLY GENUINE.

Wholesale Houses

please specify

GREENSILL'S."

# BOUQUET

SOLE MANUFACTURERS—

## F. S. GREENSILL & SON

LOCH PARADE,

**DOUGLAS, ISLE OF MAN.**



**FABRIQUE**  
DE  
**MATIÈRES PREMIÈRES DE**  
**PARFUMERIE.**

## PARFUMERIES DE SEILLANS

(VAR. FRANCE).

Flower Pomades. Perfumed Oils. Flower Extracts.

Essential Oils. Distilled Waters, &c., &c.

OF ALL WHOLESALE DRUGGISTS, OR WHOLESALE ONLY OF

R. C. TREATT, Dunster House, Mincing Lane, London.

## SHIPKOFF & CO.

## OTTO OF ROSE

MANUFACTURERS & MERCHANTS,

KIZANLIK, BULGARIA.

VIRGIN OTTO ONLY DEALT IN.

REPRESENTED IN ENGLAND BY

GEO. P. BAKER, 19 Ivy Lane, Newgate St., London, E.C.

## MARIE DU BOYER'S

# DIANE DE POITIERS SPECIALITIES

## FOR TOILET & COMPLEXION

REGISTERED



TRADE MARK.

Are giving great and general satisfaction, and, being most attractive in get up, sell at sight.

**TWENTY-FIVE PER CENT. TO THE TRADE.**

*A liberal supply of Counter Wrappers and Pamphlets on application.*

**MARIE DU BOYER, 41 New Bond Street, LONDON.**



**HORN & SON.**

OFFICES FOR BRITISH AND FOREIGN

**PATENTS AND TRADE MARKS,****SOMERSET CHAMBERS, 151 STRAND, LONDON**  
(NEXT TO SOMERSET HOUSE).*Guide to New Patent Law and Registration gratis.***HOOPING COUGH! HOOPING COUGH!! HOOPING COUGH!!!**

Positively and quickly cured by the New Discovery,

**KEMP'S WHOOPALINE**

(TRADE MARK.)

Is a certain cure in all cases of Hooping Cough, Bronchial Disorders, and all affections of the Chest and Lungs. Price 1/1 and 2/9 per bottle.  
Prepared only by**W. H. KEMP, 220 Holloway Road, LONDON,**  
Wholesale Agents:—

Messrs. BURGOYNE, BURBIDGES &amp; CO., 16 Coleman Street, London, E.C.

**CARBOLIC POWDER**

IN BAGS, CASKS, OR CANISTERS.

5%, 10%, 15%, and 30%.

**EITHER PINK OR WHITE.**

SAMPLES AND PRICES ON APPLICATION. [2]

**GRINDLEY & CO., POPLAR, LONDON, E.****GIVEN AWAY!**

YOUR MONOGRAM or NAME.

Anyone sending 3d. for postage, &amp;c., and mentioning this advertisement, will receive gratis his Two-Letter Monogram in above style, or his name in full, for Marking Linen or Paper. Great variety of Stamps. Specimens free.

**VAN HOUTEN & CO.,** Stereotypers in India-rubber,  
21 COLEMAN STREET, LONDON, E.C.

Houten.

**PRECIPITATED CHALK, WHITEST AND PUREST.**

CHEAPEST SELLERS IN THE MARKET.

**ALSO CHEMICALS, DRUGS AND OILS.**

APPLY TO

**AUG. LEVERMORE & CO.,**  
8 LIME STREET LONDON, E.C.**RUBBER TYPE**On Metal body, perfectly accurate, for instantly making a RUBBER STAMP for Special Labels, &c., saving expense and delay. Complete Outfits from 7/6. Send for Specimens and Price List to the Patentee,  
**E. M. RIGHFORD, Dept. 44 Snow Hill, London,**

Manufacturer of Rubber Stamps, Presses, the "Nigropadd" and "Effective" Self-Inking Pads, &amp;c., and Stamp-making Outfits.

Chemists in all parts of the world can add largely to their profits by pushing our Goods. Liberal terms.

ANALYTICAL AND CONSULTING CHEMIST.

**GEO. LOGAN RAIT, F.C.S., &c.**

Laboratory—81 MOORGATE ST., LONDON, E.C.

Assistance given to Manufacturers and others requiring Chemical knowledge.

Fifty per cent. discount allowed to the Trade.

**BOTTLE & PARCEL WAX**

AND

**DIRECTION TAG MANUFACTURERS.**

SAMPLES AND PRICES ON APPLICATION.

**FISHER, CLARK & CO.,** Boston, Lincolnshire.**KERNICK'S VEGETABLE PILLS, &c.**

Handbills and Posters forwarded on receipt of Trade Card.

Agents wanted for unrepresented Districts.

**KERNICK & SON, WHOLESALE DRUGGISTS, CARDIFF.****EMP. CERAT. SAPONIS.**

ON FINE SHIRTING, 16 IN. WIDE.

6s. per Dozen net cash.

**JOHN QUILLIAM & CO.,** Plaster Works, Manchester.  
Cowburn Street, [1]**HEALTHITAS,**

THE NEW DISINFECTANT, in Powder, Fluid, and Soap, &amp;c.

CHLORIDE OF LIME, in Bulk, or in  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and 1 lb. Air-tight Packages.

CARBOLIC POWDER, from £2 10s. per Ton.

CARBOLIC ACID, all kinds.

CARBOLATED CREOSOTE.

✓ **NEW CARBOLIC SANITARY CO., LD.** ✓**HACKNEY.****LOFODEN COD LIVER OIL CO.**

"NORTH STAR" BRAND.

**WRITE FOR SAMPLE.**

In Casks, Drums, and Win. Qts.

Manager—ARTHUR CLARIDGE, 135 Vine Street, Minorities, LONDON, E.C.

**ORANGE WINE**

(VIN. AURANT, F.B.)

Specially brewed for Quinine Wine, does not deposit. Is well adapted for Export, as it will keep good in any climate. In casks, 15, 27, 56, 112, 140 gallons; small casks 3s. 9d. per gall, carriage allowed. In wine bottles (not less than 3 doz.), at 9s. per doz., including bottles. Cases extra and returnable.

Sample six stamps. Special quotations to large buyers.

**GEO. DURRANT & CO.,** Hertford.**"HOME, SWEET HOME."****QUIBELLS'****INFALLIBLE DISINFECTANTS**

Write for Prices and Terms to

**QUIBELL BROS.,** Manufacturing Chemists,  
Newark-on-Trent.**S. SAINSBURY'S**

A Highly-perfumed Scent, prepared from the finest

**ENGLISH LAVENDER,**

without any foreign whatever.

**176 & 177 STRAND, LONDON. Water.**

Wholesale and Shipping terms on application.

**PURE CRUSHED LINSEED.**

Contains all the Oil. The finest procurable.

Prepared from specially selected seeds.

Sold in 1 cwt. bags, 17s. per cwt., bags free; or in 28 and 56-lb. parcels 18s. per cwt.; also in  $\frac{1}{2}$  and 1 lb. tins and parchment packets.**IDRIS & CO.**

MANUFACTURING CHEMISTS AND MINERAL WATER MAKERS,

**ASCHAM STREET, LONDON, N.W.**



**TAKEN BY**

QUIBELL BROTHERS, NEWARK, for their  
Sheep Dips and Disinfectants.

**CARMEL.**

This Castile Soap is manufactured at Mount Carmel, Palestine, from pure Olive Oil pressed on the spot. As an emollient for the skin and complexion it is the most ancient and best soap.

**AGENTS WANTED IN EVERY TOWN.**

DEPOT FOR GREAT BRITAIN AND COLONIES—

MOUNT CARMEL SOAP CO., 24 Charles Street, LONDON, E.C.  
Hatton Garden.

**PURE GRAIN SPIRIT 56 O.P. ... 18/5**

Do. Do. **DOUBLE DISTILLED 18/9**

Cash with Order. Reductions for Larger Quantities than Two Gallons.

**SAMPLES FREE.**

**STEPHEN SMITH & CO., BOW, LONDON, E.**

**SPECIALITY FOR PERFUMERY.**

This pure grain spirit, which has been thrice rectified and filtered through charcoal, is being largely used in making high-class Perfumes.

Price, 19/-, 56 o.p.; 19/6, 60 o.p. Cash with order.

Reductions for Larger Quantities than Two Gallons.

**STEPHEN SMITH & CO., BOW, LONDON, E.**

**BURROUCH'S**  
Spirits Rectified, P.B.

**SPIRITS  
OF WINE**

5 Gall. 56 o.p. at  
**10/1 CASH.**  
The BEST English Grain Spirit  
Free from Foul Oil.  
Chemically Pure.  
Special Quotations for Quantities.

**ORANGE  
WINE,**

**MEDICAL SHERRY.**

AT LOWEST PRICES.  
**JAMES BURROUCH,  
LONDON, S.W.**

**BOORD & SON,**

**RECTIFYING DISTILLERS & WINE MERCHANTS,**

**ALLHALLOWS LANE  
and  
BARTHOLOMEW CLOSE,**

**LONDON, E.C.,**

OFFER LOWEST QUOTATIONS, ON APPLICATION, FOR

**FINEST RECTIFIED SPIRITS OF WINE**

Methylated Spirit and Finish; Finest Orange Wine, Sherries,  
and Malagas for Medicated Wines.

**V. H. B. REFINED }  
V. H. B. WHITE } BEESWAX.**

Bernard Dyer,  
Sc. (Lond.) F.C.S.,  
I.C., Analytical  
and  
Consulting Chemist.

London, E.C., Nov. 25, 1886.  
I have analysed a cake of Wax stamped  
H.B. sent to me by a London House  
behalf of Messrs. W. H. Bowdlear &  
Co., Boston, Mass., U.S.A. It consists  
pure bleached beeswax unmixed with  
tallow, fat, or other of the various  
materials with which beeswax, and  
especially white wax, is commonly adul-  
terated.

Bernard Dyer, B.Sc., F.C.S., F.I.C.,  
Member of the Society of Public Analysts.

CABLE ADDRESS—"BOWDLEAR BOSTON."

**V. H. BOWDLEAR & CO.,**  
147 Pearl Street, BOSTON, MASS., U.S.A.

Our goods may be obtained in single  
case lots of any of the leading  
Wholesale Druggists in the Northern  
and Midland Counties, and of  
LOTHOUSE & SALTNER, Hull;  
COLTHURST & HARDING, Bristol;  
GOODALL, BACKHOUSE & Co., Leeds;  
GLASGOW APOTHECARIES COMPANY,  
Glasgow; OLDFIELD, PATTINSON &  
Co., Manchester.

We will deliver our Goods in 5-cwt.  
lots ex quay, in any City which is  
the Terminus of a Steamship Line  
throughout the Kingdom.

**PURE**

**SPIRITS OF WINE.**

60 o.p., 20/3 per gall.; 56 o.p., 19/9 per gall.

1/ per Gall. Discount for Cash with order.

Further allowance for quantity. **STEAM STILLS ONLY.**

**GEORGE PHILLIPS & CO.,**

**ST. ANDREW'S DISTILLERY, CLERKENWELL RD.  
LONDON, E.C.**



# THE ORIGINAL GENUINE EAST INDIA OIL OF MUSTARD SEED

Is strongly recommended as a safe and effectual remedy in cases of  
RHEUMATISM, GOUT, RHEUMATIC GOUT, SCIATICA, LUMBAGO, HEADACHE, PAINS IN THE  
STOMACH, SPASMS, BRUISES, CHILBLAINS, &c.

**RETAIL IN BOTTLES, 1s. EACH.**

Imported by J. H. & S. JOHNSON, Wholesale Druggists, 6, 8, and 10 WHITECHAPEL, LIVERPOOL.  
Wholesale Agents: London—Newbery & Sons, and Bourne, Johnson & Latimer.

## EMPTY PETROLEUM BARRELS.

Empties may also be delivered for our account to Palmer's Wharf, Bethnal Green; Thames Haven Petroleum Wharf, Thames Haven; or any Railway Depot within 4 miles of the Royal Exchange, London.

N.B.—All Empties delivered at a Railway Depot as above will be collected at our expense. No charge to the Sender.

The same price paid for Russian as for American Barrels.



OUR PRICE to-day for fresh emptied Blue and White American Barrels in sound condition, and that have last contained refined American illuminating oil, is 3s. 8d., delivered at Atlantic, Palmer's, or Thames Haven Wharf. For barrels branded with our brand, "Lustre," 3s. 6d. For other Russian Brands 3s. 4d.

Parcels of 15 barrels and over collected at sellers' own premises if within 4 miles of the Royal Exchange, London, and the same price given as would be paid by other Receivers for delivery at their wharf.

NOTICE.—In the case of Empties sent for our account to a Railway Depot or to Palmer's or Thames Haven Wharf, please advise us when sending, and mark the barrels with K in Yellow Paint that we can recognise them. In the case of sellers wishing us to collect from their own premises, we shall be glad of two days' notice.

DEDUCTIONS FOR DAMAGE.—Broken Chimb or Stave, 6d.; broken Head, 6d. to 1s. 6d., according to extent of damage.

**THE KEROSENE COMPANY, LIMITED, 26 GREAT ST. HELENS, LONDON, E.C.**  
IMPORTERS OF RUSSIAN PETROLEUM.

 <b>GOVERNMENT DISINFECTANT</b> 	
<b>CARBOLIC POWDER (PINK) in 1 Cwt. 2 Cwt. CASKS 1lb &amp; ½ Packages.</b>	
<b>CARBOLIC POWDER (PINK) in TINS 6d &amp; 1/-</b> <b>CARBOLIC FLUID in 6d &amp; 1/-</b>	<b>CARBOLIC SOAP No 1 &amp; No 2</b> <b>CARBOLIC &amp; GLYCERINE SOAP in ¼ lb &amp; 7 TABS</b>
<b>STOPPED BOTTLES</b> <b>THE GOVERNMENT SANITARY CO., LONDON E.C.</b>	
<b>FREE FROM POISON</b> <b>AGREEABLE IN SMELL.</b>	<b>TO BE HAD FROM ALL</b> <b>WHOLESALE DRUGGISTS</b>

**GENUINE EMERY, EMERY CLOTH, AND BLACK LEAD.**

## JOHN OAKEY & SONS,

MANUFACTURERS OF

Glass Paper, Emery and Glass Cloth; Emery, Black Lead, Emery Wheels, Pumice, Putty Powder, Crocus, Urn Powder, Tripoli, Rouge, Plate Powder, Steel Polish, Furniture Polish, Knife Boards, Brunswick and Berlin Black, &c.

## OAKEY'S WELLINGTON KNIFE POLISH,

Prepared expressly for Oakey's Patent Rubber Knife Boards, Buff Leather Boards, and all the Patent Knife Cleaning Machines.

Sold in Canisters with perforated Tops to prevent waste, at 1d., 2d., 3d., 6d., 1s., 2s. 6d., and 4s. each.

### OAKEY'S NON-MERCURIAL SILVERSMITH'S SOAP,

For Cleaning and Polishing Silver, Plate Glass, Marble, &c. Tablets, 6d. each.

### OAKEY'S "POLYBRILLIANT" (Registered).

A Magio Pomade for Cleaning Brass, Copper Tin, Pewter, Britannia Metal, &c. Never becomes dry and hard like other Metal Pastes. Tins 1d., 2d., 3d., and 6d. each.

### WELLINGTON BLOCK BLACK LEAD,

In 1d., 2d., and 4d. Blocks, and 1s. Boxes.

**WELLINGTON EMERY & BLACK LEAD MILLS, Westminster Bridge Road, London, S.E.**

Highest award and Prize Medal, Philadelphia Exhibition, 1876; and Boston, 1888. Gold Medal, Crystal Palace, 1884.

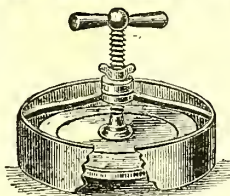


## PATENT AUTOMATIC PILL PICKING MACHINE.

All kinds of Pills Picked and Sorted with  
**QUICKNESS, ACCURACY, and ECONOMY.**  
Hand-picking dispensed with, and the finished sample much  
improved. All Pills *above* or *below* the Standard size and all  
imperfect in shape rejected.

FULL INFORMATION AND PRICES FROM  
**HERBERT & HUBBARD,**  
ENGINEERS, COVENTRY,  
MAKERS OF SPECIAL MACHINERY FOR THE DRUG TRADE.

## BRACHER'S "DESIDERATUM" ADJUSTABLE PILL FINISHER



(BELF'S PATENT).

"DESIDERATUM"  
(TRADE MARK)  
ON EVERY MACHINE.

For Descriptive Price Lists and Testimonials  
apply to

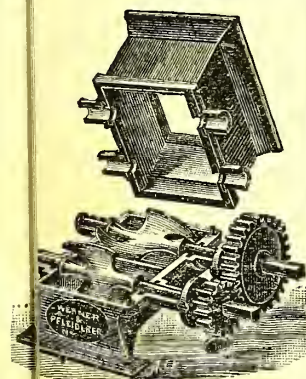
**BRACHER & CO.**

*Inventors and Patentees,*

**WESTHILL, WINCANTON.**

SHOWROOMS { London-100 Houndsditch. Manchester-24 Corpora-  
tion Street. Wolverhampton-2 Cleveland Street.

PRICE 6/6 EACH.



See 3, Type I, for 1-lb. Mass.

## THE "UNIVERSAL" KNEADING AND MIXING MACHINE FOR PILL MASS MAKING,

ALSO FOR

Horse Balls, Tooth Pastes, Ointments, Soaps, Powders, and for  
general Mixing and Incorporating.

REPLACES WITH ADVANTAGE ALL OTHER APPLIANCES FOR THESE PURPOSES.

Made in various sizes, to do from  $\frac{1}{2}$  lb. up to 1 ton at a time.

**WERNER & PFLEIDERER,** 86 Upper Ground St., LONDON, S.E.,  
Blackfriars Bridge,

## CARTER'S DISINTEGRATORS

Will Pulverise, Granulate, or Shred almost any Mineral, Vegetable, or Animal Substance.

**NEARLY 1,100 IN USE**

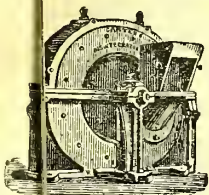
IN ALL PARTS OF THE WORLD.

For Grinding Sugar, Bark, Linseed, Ginger, Pepper, Spices, Salt, &c., this Machine is invaluable.  
Made in 9 Sizes. Illustrated Catalogue may be obtained on application.

Samples of ANY Material will be Ground free of charge.

**J HARRISON CARTER, 82 MARK LANE, LONDON; and PARIS.**

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## STERLING'S "COMBINATION" BREAST EXHAUSTER,

AS SUGGESTED IN

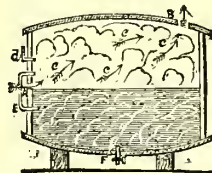
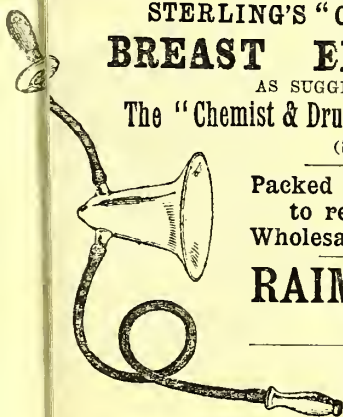
The "Chemist & Druggist" on June 16th

(See page 781).

Packed in Cardboard Boxes  
to retail at 1s. each.  
Wholesale, 7s. per doz. net.

**RAIMES & CO.**  
**YORK.**

**RAIMES, CLARK & CO.**  
EDINBURGH.



**NEW METHOD OF MAKING VINEGAR,**  
BY THE REVOLVING APPARATUS  
(Michaelis' Patent).

For further particulars

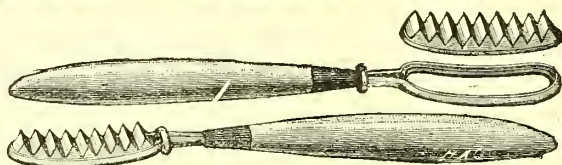
See the Chemists' and Druggists' Diary, 1884, page 274,  
OR APPLY TO

**PAUL ROTHERMEL,**  
105 (late of 27) LEADENHALL ST., LONDON  
69



**H. A. GOODALL & CO.,** ESTABLISHED 1852.  
 Bartlett's Buildings, LONDON, E.C.  
 WHOLESALE ONLY. NO PRIVATE BUYERS SERVED.

## THE "IDEAL" FELT TOOTH BRUSH.



A GREAT NOVELTY IN TOOTH BRUSHES.  
 Prevents decay, soothes the gums, and polishes the teeth, which no other Brush can excel.

### HANDLES.

Assorted Bone and Horn, with Nickel-plated Imperishables, 11/- per dozen.

### BOXES OF FELT,

Containing 18 Heads, 7/- per dozen.

An Attractive Show Card given with each Dozen.

PATRONISED BY HER MAJESTY.

## BARBER'S ORIGINAL CRIMSON MARKING INK,



WHICH IS CHANGED BY HEAT TO A JET BLACK.

Put up for Retail Sale in 6d., 1s., 2s., 2s. 6d., and 5s. Bottles.

Also Barber's Concentrated Liquid COCHINEAL, for Colouring Jellies, Custards, &c.

Put up in 6d. and 1s. Bottles.

MANUFACTURED ONLY BY THE PROPRIETORS—

**G. BARBER & CO., Club Moor, LIVERPOOL.**

Can be obtained through any of the Wholesale Firms in Great Britain, or from FELTON, GRIMWADE & CO., Melbourne; ELLIOT BROS., Sydney and Brisbane; KEMPTHORNE, PROSSER & CO., Dunedin and Auckland; FELTON, GRIMWADE & CO., Wellington; or direct from the Manufacturers—G. BARBER & CO., Club Moor, Liverpool, England.

# WATERSTON'S SEALING WAX.



ELEVEN PRIZE MEDALS.

70



ESTABLISHED 1752.

Registered Trade Mark—"SANITAS."  
 Telegraphic Address—"SANITAS LONDON."  
 Telephone Number—1,011.

# THE SANITAS CO., LIMITED,

LETCHFORD'S BUILDINGS,

Three Colt Lane, Bethnal Green, LONDON, E.

Gold Medals, Antwerp, 1886, and Exposition du Travail, Paris, 1885.  
 First-Class Certificate and Gold Medal, Calcutta International Exhibition, 1883-84.  
 Medal, Sanitary Institute of Great Britain, 1882.  
 Silver Prize Medal (Highest Award), National Health Society's Exhibition, 1883.  
 Award, International Medical and Sanitary Exhibition, 1881.

## RETAIL PRICE LIST.

Sanitas " Disinfecting Fluid	1/- Bottles and 5/- per Gallon in Jars and Casks (Extra).
Sanitas " Disinfecting Oil	1/- and 4/- Bottles, and 15/- per Gallon in Jars and Casks (Extra).
Sanitas " Disinfecting Emulsion	1/- Bottles, and 12/- per Gallon in Jars and Casks
Sanitas " Crude Disinfecting Fluid	1/- " " 5/- " in Drums and Casks
Sanitas " Insecticide and Liquid Soap	1/- " " 5/- " " " " "
Sanitas " Sheep Dip	In Bulk only, at 5/- " " " " "
Sanitas " Antiseptic Toilet Fluid	1/- and 2/6 Bottles.
Sanitas " Disinfecting Powders	6d. and 1/- Tins, and in any bulk (Casks Extra).
Sanitas " Antiseptic Tooth Powder	1/- Boxes.
Sanitas " Antiseptic Toilet Powder	1/- Boxes.
Sanitas " Disinfecting Bar Soaps, } No. 1 and No. 2 }	In 6d. and 4d. Bars respectively, in $\frac{1}{4}$ , $\frac{1}{2}$ , and 1 Cwt. Cases.
Sanitas " Disinfecting Soft Soaps, } No. 1 and No. 2 }	In Kegs only of $\frac{1}{4}$ , $\frac{1}{2}$ , 1 and 2 Cwts. respectively.
Sanitas " Antiseptic Toilet Soap	1/6 Boxes of 3 Tablets.
Sanitas " Disinfecting Family Soap	2d. Tablets, in Boxes of 3 Dozen.
Sanitas " Brown Windsor Soap	In 7 lbs. and 14 lbs. Boxes at 4/8 and 9/3 respectively.
Sanitas " Animal (Soft) Soap	1/- Pots, and in Kegs of $\frac{1}{4}$ , $\frac{1}{2}$ , and 1 Cwt.
Sanitas " Dog Soap	6d. Boxes.
Sanitas " Soap Powder	In Kegs only of $\frac{1}{4}$ , $\frac{1}{2}$ , 1 and 2 Cwts. respectively.
Sanitas " Disinfecting Jelly	1/- and 3/6 Pots.
Sanitas " Veterinary Ointment	2/6 Tins.
Sanitas " Disinfecting Furniture Cream	1/- Bottles
Sanitas " Disinfecting Fumigators	3/6 each, including Spirit Lamp for use with same.
Sanitas " Antiseptic Gauze	2 $\frac{1}{2}$ d. per Yard.
Sanitas " Absorbent Wool	2/- per lb.
Sanitas " Antiseptic Lozenges	1/1 $\frac{1}{2}$ Tins.
Sanitas " Air Purifier	1/- Tins.
Sanitas " Urinal Tablets	1/- Boxes of 6 Tablets.
Sea-Water Sanitas "	2/- Bottles, and 10/- per Gallon in Jars and Casks (Extra).
Sanitas " Disinfecting Saw Dust	10/- Bags of 56 lbs.
Kingzett's Bactericides "	2/- Bottles, and 10/- per Gallon in Jars (Extra).

*Trade Prices and Discounts will be furnished on application, and orders may be placed with any of the Wholesale Houses.*

# THE SANITAS COMPANY, LIMITED,

C. T. KINGZETT, F.I.C., F.C.S., Managing Director.



# MAW'S

## EARTHENWARE INHALERS

For Hot Water, Infusions, &c.



FIG. 8.

MAW'S IMPROVED.

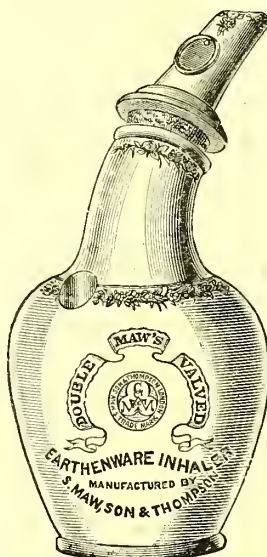


FIG. 6.

MAW'S DOUBLE-VALVED.

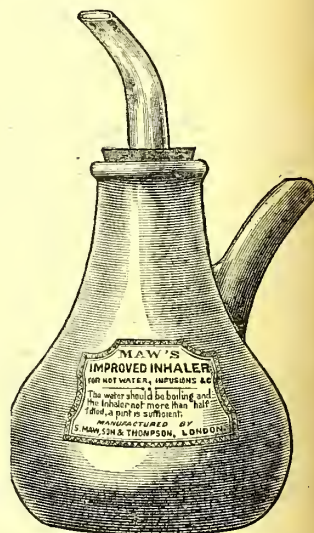


FIG. 8a.

MAW'S IMPROVED.

Fig. 6.—Double-Valved, 60/- per dozen; with Elastic Tubes, 78/-

Fig. 8.—Marbled, 32/- per dozen.

Fig. 8a.—White, 21/- per dozen.

Fig. 8a.—White, half size, 13/- per dozen.

ELASTIC TUBES, with Mouthpieces, to fit Fig. 8 and 8a, 7 inches long, 8/- per dozen; 9 inches long, 12/- per dozen.

SPECIAL QUOTATIONS TO WHOLESALE BUYERS.

MANUFACTURED BY

# S. MAW, SON & THOMPSON, LONDON.



# CHEST

PRIZE MEDAL,



SYDNEY, 1879.

# PROTECTORS.

The Felt we use is manufactured specially for us from the finest quality Lamb's Wool.

**WE DON'T SEND OUT SECOND QUALITY.**

## LYNCH'S "CUIRASS."

### Scarlet or White Felt

PER DOZEN.

No. 1 ...	...	...	24/-
" 2 ...	...	...	30/-
" 3 ...	...	...	36/-
" 4 ..	...	...	43/-
" 5 ...	...	...	54/-
" 6 ...	...	...	66/-

### SCARLET or WHITE FELT, per dozen.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
BREADNOUGHT (Double) ...	16/6	22/-	27/-	33/-	44/-	50/-
GENTLEMEN'S Single ...	10/-	11/6	13/6	16/-	21/-	27/-
LADIES' Single ...	7/-	9/-	11/-	13/6	19/-	22/-

### CHAMOIS LEATHER, lined with Flannel, per dozen.

GENTLEMEN'S, Single ...	10/6	12/6	14/6	17/-	23/-	—
LADIES' Single ...	7/6	9/6	11/6	14/-	20/-	—

### WAISTCOAT PATTERN.

CHAMOIS & FLANNEL ...	23/-	31/6	40/-	49/6	61/-	71/-
FELT, Scarlet or White ...	20/-	28/6	36/-	44/-	54/6	67/-

### CUIRASS JACKETS,

With half-sleeves buttoning down front, made of Perforated Chamois Leather and Porous Scarlet Flannel.

Size	No. 1	No. 2	No. 3	No. 4
Each	32 by 18 in. 6/6	34 by 18½ in. 7/6	37 by 20½ in. 8/6	39 by 21 in. 9/6

Less 10 per cent. for Cash Monthly; 5 per cent. Half-yearly account.

Special Quotation for £10 worth and upwards.

SEE ILLUSTRATIONS TO PART I. OF CATALOGUE.

**LYNCH & CO., ALDERSGATE ST., LONDON, E.C.; & MELBOURNE.**



# THE BEST NATURAL APERIENT.

Persistent attempts are made by interested parties to deceive the public by offering Natural Mineral Aperient Waters with marks, names, and designations very similar to those which are used by the

## APOLLINARIS COMPANY, LIMITED, UPON THE NATURAL MINERAL APERIENT WATERS

IMPORTED BY THEM.

Under these circumstances the APOLLINARIS COMPANY (LIMITED) feel compelled to caution the public that the HUNGARIAN BITTER WATER sold by the COMPANY always bears the name of the APOLLINARIS COMPANY (LIMITED) on the Label, and a RED DIAMOND, which is their TRADE MARK of Selection.

**DEMAND THE DIAMOND MARK,**  
and insist upon receiving the HUNGARIAN APERIENT WATER of the APOLLINARIS COMPANY (LIMITED).

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**Cadbury's Cocoa** IS SOLUBLE  
and ABSOLUTELY PURE. ABSOLUTELY PURE.

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## SOLE IMPORTERS

OF

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FRIEDRICHSHALL WATER,  
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# THE APOLLINARIS CO., LIM.

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# THE CHEMIST & DRUGGIST

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Businesses Wanted.  
Businesses for Disposal.  
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SATURDAY, SEPTEMBER 22, 1888.

Partnerships.  
Situations Vacant.  
Situations Wanted.  
Miscellaneous.

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Advertisements for this Supplement and Exchange Column must be prepaid. Remittances payable to EDWARD HALSE, and crossed MARTIN & CO.

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1.—£3,000.—LONDON (CITY).—Wholesale and Retail first-class Business, established many years; handsome shop and commodious premises, with laboratory, &c.; returns nearly £3,000, increasing, profit 20 per cent.; valuation of stock and fixtures required; references exchanged.

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8 Stockbridge Terrace, Victoria Station, S.W.  
25 Years' Experience Valuation for Probate, &c.

1. DURHAM .....	Returns £1,650.	Rent £75.	Price £1,000
2. CHESHIRE .....	" 1,300.	" 55.	" 700
3. STAFFORDSHIRE .....	" 1,200.	" 60.	" 1,150
4. KENT .....	" 1,000.	" 60.	" 600
5. KENT COAST ...	" 1,000.	" 45.	" 750
6. KENT .....	" 660.	" 52.	" 600
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Some of above, newly established, increasing rapidly.

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3s. 6d. for fifty words; 6d. for every 10 words beyond.

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3s. 6d. for fifty words; 6d. for every 10 words beyond.

**TO** Let, handsome Corner Shop in main road of rapidly rising neighbourhood, S.W.; splendid opening for a Chemist; lease on favourable terms at a moderate rent. Apply, "Chemist," care of Mr. Jones, 20 Ely Place, Holborn, E.C.

**ALTRINCHAM.** Cheshire; eight miles from Manchester.—To be Let, in the Market Place, the most eligible position in this important residential town; capital Business Premises, eminently adapted for a high-class business of a chemist and druggist or dentist; the house contains drawing and dining rooms, three principal and three secondary bedrooms, with modern conveniences, butler's pantry, capital kitchen, cellars and offices; rent very moderate. David Morrison, Estate Agent, Altrincham.

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**HOMOEOPATHY.**—An old-established Homoeopathic Pharmacy for disposal; the only one within a radius of 30 miles; satisfactory reasons given for leaving; liberal terms to an immediate purchaser. Cowdery, 4 Parade, Northampton.

**FOR** immediate disposal, an old-established Mixed Business, in manufacturing town, about 6 miles from Manchester; present owner retiring; to an energetic man this is an opportunity seldom met with. For particulars apply to Messrs. Bleasdale & Co., York.

**BUCKS.**—An old-established Country Trade (Little Stationery), returning £2,000, will be sold for about the value of stock and fixtures; large and convenient house, and very commanding corner premises; price about £1,800, part of which may remain. Address, 23/15, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

**DEAL.**—Light Retail Dispensing, under management, to be sold; a bargain to immediate purchaser. Apply to T. Casely, 46 Camden Road, N.W., or 175 High Street, Deal.

**IN** good position (Douglas, Isle of Man), old-established Dispensing Family Retail; returning £500 at good prices; owner, going abroad immediately, to avoid ruinous sacrifice will take £350 much below value of stock and fixtures; can be much increased; registration not necessary. Mr. Baker, Stockbridge Terrace, S.W.

**LONDON, W.**—For immediate disposal, a recently established compact Retail, Dispensing, and Prescribing Business; good stock and fittings; satisfactory reason for selling; large house; low rent; books open for inspection to bona-fide purchaser; price, if sold at once, £150. "Proprietor," 113 The Grove, Hammersmith.

**FOR SALE**, an old-established Country Retail, Family, and Prescribing Business, in good working order; an opportunity seldom met with; returning about £1,000; shop well fitted and stocked; good house, warehouses, and garden. "Midlands," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

**LANCASHIRE.**—An old-established good general mixed Business, well situated in the best part of a good town in the north-eastern division, to be disposed of only on account of ill-health; rent £45; returns 1888, £840; in 1887, £946; price to an immediate cash purchaser, £600. Apply to A. M. Hugill, care of R. Sumner & Co., Wholesale Druggists, Liverpool.

**TO** Medical Officers.—Surgeon Dentist's, Dispensing, Prescribing, Allopathy, and Veterinary Business, North of Scotland, established 20 years; convenient house, attached large garden; centre of city; stock and house furniture, £350; profitable investment seldom met; yearly rental £30; immediate entry to house and shop. "Aster," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

**TO** Wholesale Druggists, Perfume and Herb Distillers, and others.—To be sold, with or without the premises, the goodwill of the old-established Business of Potter & Moore, distillers of essential oils, which has been carried on at Mitcham, Surrey, for upwards of a century. For full particulars apply to Blake, Haddock & Carpenter, Auctioneers, &c., 45 High Street, Croydon.

**CHEMIST** and Druggist's.—A genuine old-established Business in large town, Worcestershire; owner retiring after 40 years' occupancy; now returning over £500 per annum, but treble this amount may readily be done; well fitted shop and excellent house; price for stock, fixtures, &c., £450, or by valuation. Cook & Smith, Trade Valuers, 47 King William Street, London.

**£1,500.**—Very old-established Business in prosperous market town in the Eastern Counties; vendor retiring; same hands over 30 years; good-class Retail, Prescribing, and Dispensing Business, partly under management, returning £2,000; excellent house and premises; price £150, or small premium and valuation. Address, "Sodit," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

**WANTED** to Sell or Exchange Seaside for Agricultural Business; shop offered splendidly fitted, well stocked; predecessor had this 44 years; all ready-money trade; close to two fashionable watering-places; vendor unaccustomed to counter trade sole reason for disposal; suit invalid or beginner; low price taken. "Veterinary," Deacon's, Leadenhall Street, London.

**A BARGAIN.**—Profitable little concern; established 50 years; returning under management £450; half profits; large manufacturing district; no opposition; rent £25; price £200; proprietor is buying another business, so could take the stock, thus reducing purchase to very nominal sum (about £70). "Medicus," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

**CHEMIST** and Dentist, removing to private house and confining himself to Dentistry, has Business for disposal at valuation; shop well fitted and stocked; in very busy and thickly-populated district; little opposition and fair prices; will teach purchaser Dentistry free, and hand over share of practice when efficient; good house attached; low rent; part purchase can remain. Address, "Dentist," Goodall, Backhouse, Leeds.

**WORTH NOTICE.**—London, W.—Genuine Light Retail, Dispensing, and Prescribing ready-money Business; full prices, with excellent profits; good house; healthy locality; most satisfactory reasons for leaving; present owner 11 years; will hear the strictest investigation; £900 cash. Apply, J. H., at Burgess, Willows, 101 High Holborn, W.C.; or Sanger & Sons, 489 Oxford Street, W.

**FOR SALE**, a long-established and highly respectable Chemist's, Druggist's, Grocer's, and Seedman's Business in Launceston, with agencies for Gilbey's wines and spirits, and for the Crown Life Assurance and Art Union of London Companies.

**TO BE SOLD**, with immediate possession, the Stock and Goodwill of the excellent Business carried on for many years by Mr. Thomas White, lately deceased, and previously by Mr. Spettigue, in the centre of the thriving borough of Launceston, Cornwall.

The freehold dwelling-house and shop in which the business has been conducted may either be purchased or rented.

The shop is situated at the junction of all the leading thoroughfares in the town, facing Broad Street, Market Street, and Church Street.

For leave to inspect, and to treat, and for all other particulars apply to Mr. J. R. White on the premises, or to Peter & Son, Solicitors, Launceston.

Dated September 17, 1888.



## SITUATIONS OPEN.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

**WANTED**, a Junior or Improver in a mixed Agricultural trade. State full particulars to Geo. Green, Chemist, Alford, Lincolnshire.

**ASSISTANT** (indoors) for country business; must be good Dispenser and able to take entire charge, sober, and reliable. Address, giving full particulars, Y. B. F., Mr. Banister, 3 Clayton Square, Liverpool.

**AN Assistant**, indoors; qualified preferred; aged 24; one seeking a permanency; must be reliable dispenser. Personal application, or full particulars, salary, &c., to F. K. Morrell, 306 Kennington Park Rd., S.E.

**JUNIOR** or Improver, accustomed to Surgeon's Dispensing. Apply, with full particulars (stating experience, age, height, salary required, and giving references), to J. S. Candy, Wantage, Berks.

**WANTED**, an English Assistant, steady and respectable, speaking a little French. Address (enclosing photograph), Mons. T. Gonzalez, Pharmacien, Biarritz.

**WANTED**, a man to manage and superintend Drug Department of a store in North of England; outdoors. Apply, "Drugs," care of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

**WANTED**, an Indoor Assistant for a Surgeon's Retail; age preferred about 23. Apply, personally if possible, before 11 or after 7 o'clock, to W. Rumbold, 2 Surrey Square, Old Kent Road, S.E.

**WANTED** at once, a competent Assistant, whose character will bear the strictest investigation. Apply, J. Geldart, 23 Netherfield Road North, Liverpool.

**AN ASSISTANT** (Minor qualification); a good Counterman and Dispenser, and accustomed to a good class Mixed business. Address, with usual particulars, N. F., Messrs. Evans, Sons & Co., Liverpool.

**QUALIFIED Assistant**; age about 24; good counterman and dispenser, and accustomed to a good-class country business (junior kept). Apply, stating age, height, salary, references, and enclose photo, to Rae, Chemist, Newmarket.

**WANTED**, by an old-established firm, a Traveller for the Midland Counties, to sell Sponge upon commission. Full particulars to O. L., care of THE CHEMIST AND DRUGGIST. Unexceptionable references required.

**WANTED**, at once, Traveller with good connection in North or South of England, to represent a firm of Wholesale Druggists and Manufacturing Chemists. Apply with references and salary required, to Crooke & Baynton, Birmingham.

**FOR CEYLON**.—Qualified Assistant required; aged 25 or under; preference given to gentleman of scientific turn and having some experience in chemical analysis; state age and height; send photo; furnish usual particulars. Mr. Campbell, 11 Brunswick Square, Gloucester.

**WANTED**, early in October, smart, energetic Junior; must be a good salesman or of no use; character must bear the strictest investigation; tall, gentlemanly, and willing to make himself generally useful; one seeking a permanency preferred; enclose photo and state salary required. Coles & Co., Reading.

**WANTED**, single-handed Assistant; able to manage entirely if required; town and country experience; a Churchman, and one seeking a permanent situation preferred; no Sunday duty. Send experience, age, height, salary required, with photo, to A. R. Awbery, Henley-on-Thames, Oxon.

**QUALIFIED Assistant** (outdoors) to manage branch, West End, London; must be assiduous and well-up in dispensing, a good salesman, and of thorough business habits; salary £84, increasing £10 annually to £124. Address, stating experience and naming referees, "Stat magni nominis umbra," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

## SITUATIONS WANTED.

1s. for twelve words; 6d. for every six words beyond.

**AS Assistant**; qualified; aged 22; height 5 ft. 11 in.; accustomed to good-class retail. A. Bellamy, Maiden Row, Louth, Lincs.

**ASSISTANT**, or Dispenser to Surgeon; aged 32; Apothecaries' Hall qualification. J. H., 108 Harrow Road, London.

**LOCUM-TENENS**; qualified; experienced; good prescriber; tall; teetotaler. Hall Roberts, Holbein House, Folkestone.

**OUTDOOR Assistant**; aged 23; tall; good experience; has managed branch. F. T., 87 Russell Street, Peterborough.

**MANAGER** or Dispenser; Surgeon's or Chemist's; temporary or permanent. James Dunkerly, M.P.S., 88 Morton Road, Islington, N.

**DISPENSER**; locum-tenens or permanent; registered; outdoors. N. B., 40 Seymour Street, N.W.

**WHOLESALE**.—Situation wanted; 3 years' experience; qualified; aged 23; laboratory preferred. J. G., 1 Mostyn Road, Brixton, S.W.

**DISPENSER** to Surgeon, &c.; aged 24; disengaged. A. E. A., 16A George Street, Hastings.

**LOCUM-TENENS**; disengaged 24th; Hospital or Retail. R., 23 Ampton Street, Gray's Inn Road, W.C.

**TEMPORARY**; town or country; disengaged 28th. S., King's Cross Road, London.

**ASSISTANT**, aged 24; prescriber, extractor; excellent reference. 33 Great Western Street, Wednesbury.

**TEMPORARY**, during absence; long experience; qualified; disengaged. X., 121 Cornwall Road, Bayswater, W.

**MANAGER**: Surgeon's or Chemist's; registered; 27 years' experience. "Manager," 1 East Street, Loftus, Cleveland.

**TEMPORARY**; disengaged September 23; town or country. T. L., 151 Nevill Road, Stoke Newington.

**ASSISTANT** or Branch Manager; aged 23; tall, experienced. Brown, 3 Camden Road.

**AS Junior** in good Dispensing Business; height 5 feet 9 inches. Address, B. H., 40 Lad Street, Bewley.

**JUNIOR**; 5 years' experience; aged 21; satisfactory references; careful dispenser. "Beta," Rev. Atkins, Wesleyan, Cowbridge, Glamorgan.

**LONDON** or large town; outdoors preferred; 8 years' good experience, 3 in present situation; dispense, prescribe; permanency if suitable. G. Hackthorne, Stafford Street, Walsall.

**OCTOBER 1st**: Assistant; 25; qualified; 10 years' town and country experience; excellent references; London preferred. McCorquodale, Amersham, Bucks.

**AS Junior** or Dispenser; time for reading; aged 25; 11 years' experience; moderate salary; please state hours. G. W. S., 16 Broad Street, Welshpool.

**TEMPORARY** or Permanent Managership; qualified; 20 years' experience; unexceptionable references. "Pharm.," M. Lewis, 5 James Street, Bath.

**AS Junior**; 5 years' experience; tall; excellent references; passed Preliminary. William Read, Crooklands House, Milnthorpe, Westmoreland.

**MANAGER** or Senior; qualified; experienced; married; accustomed to good-class country business; North preferred. "Sagittarius," 31 Crossgate, Durham.

**ASSISTANT**, unqualified; quick Dispenser; had experience with medical man; aged 27; excellent references. Bennett, Prospect Terrace, Gunnislake, Tavistock.

**DISPENSER** or Assistant; London and country experience; good references; aged 27. G. N., 7 Laudport Street, Southsea, Portsmouth.

**ASSISTANT**; aged 26; 6 years' experience; English and French; salary no object; time to study; disengaged October. Harry Gellee, 42 Rue d'Auteuil, Paris.

**To Wholesale Druggists, Druggists' Sundrymen or Perfumery**.—Son of a Chemist, 25, wishes to represent any of the above as Town Traveller; would accept part salary and commission. Address, T. T., 112 Gower Street, W.C.

## APPRENTICESHIPS.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

**MR. TATLOCK**, Dentist, of 49 Newgate Street, requires an Apprentice to the mechanical branch of the profession.

**A CHEMIST** wants to exchange Sons with another for above; Dispensing and good country retail, Midlands. 21/9.

**To CHEMISTS**.—The relatives of an orphan lad, well educated, would like to Apprentice him; premium about £50; good references given and required. "Solicitor," Cromwell House, Fitzhugh, Southampton.



